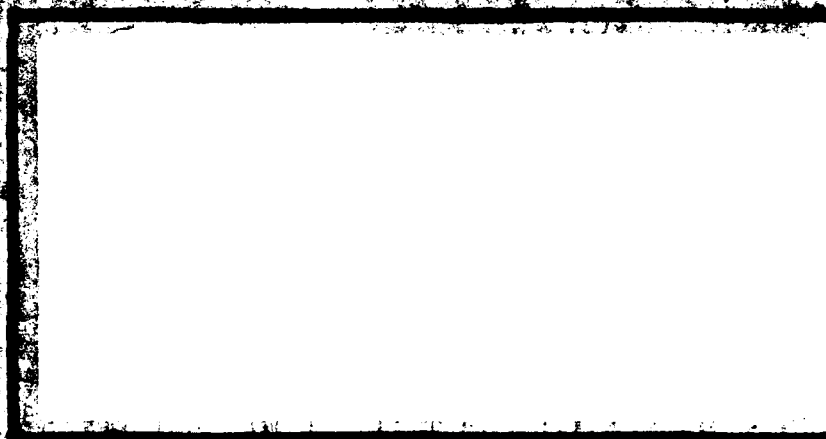
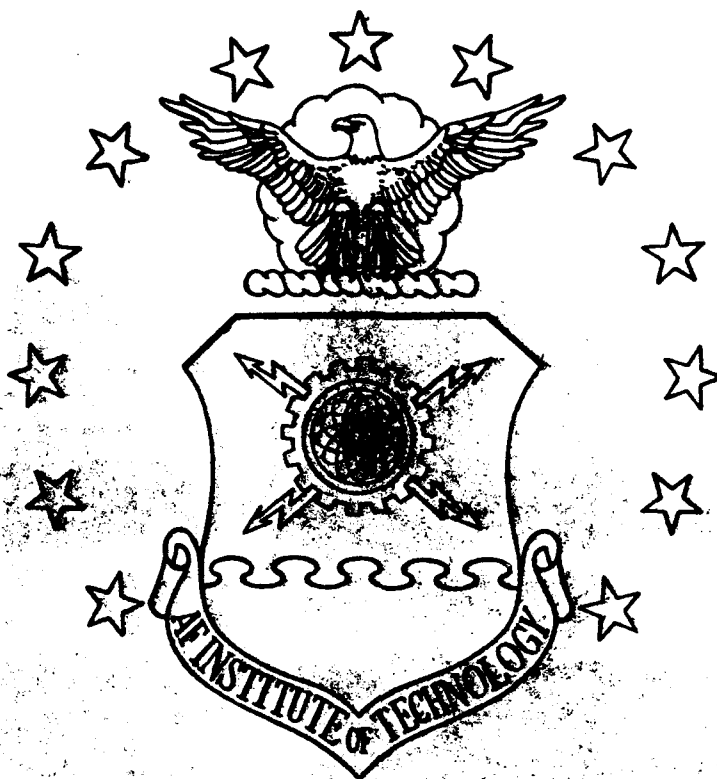


DTIC FILE COPY

2

AD-A229 460



DTIC  
S ELECTE D  
DEC 13 1990  
GO E

DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY  
**AIR FORCE INSTITUTE OF TECHNOLOGY**

Wright-Patterson Air Force Base, Ohio

REPRODUCTION STATEMENT  
Approved for public release

90 12 12 009

AFIT/GLM/LSR/90S-28

EFFECTIVE TRAINING METHODS  
FOR TEACHING HUMAN SKILLS  
TO SUPPLY OFFICERS

THESIS

Kevin D. Illsley, Captain, USAF

AFIT/GLM/LSR/90S-28

DTIC  
ELECTE  
DEC 13 1990  
S E D

Approved for public release; distribution unlimited

The opinions and conclusions in this paper are those of the author and are not intended to represent the official position of the DOD, USAF, or any other government agency.



Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

AFIT/GIM/LSR/90S-28

EFFECTIVE TRAINING METHODS FOR TEACHING  
HUMAN SKILLS TO SUPPLY OFFICERS

THESIS

Presented to the Faculty of the School of Systems and Logistics  
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Logistics Management

Kevin D. Illisley, B.S.

Captain, USAF

September 1990

Approved for public release: distribution unlimited

### Acknowledgements

This thesis would not have been possible without the support and guidance of Lt Col Tim O. Peterson, Ph.D., from the Air Force Logistics Management Center. I greatly appreciate his time, effort, and enthusiasm. He made himself available to me for over a year and frequently revitalized me with his enthusiasm. He will always inspire me to improve. His use of the socratic teaching method greatly increased my learning. I also appreciate his liberal book check-out policy from his personal library.

I would also like to thank Dr Vaughan, my thesis advisor, and Dr Campbell, my thesis reader, for the numerous hours each spent with me discussing this study. Their comments and recommendations added an important viewpoint to this research.

Finally, I would like to thank my wife, Marlene, for her love, patience, and understanding. Her encouragement and support helped me complete this thesis.

Kevin D. Illsley

## Table of Contents

	Page
Acknowledgements . . . . .	ii
List of Figures . . . . .	vi
List of Tables . . . . .	vii
Abstract . . . . .	viii
I. Introduction . . . . .	1
General Issue . . . . .	1
Background . . . . .	2
Focus of Study . . . . .	4
Problem Statement . . . . .	11
Investigative Question . . . . .	11
Organization of Thesis . . . . .	11
II. Review of the Literature . . . . .	13
Introduction . . . . .	13
Method of Treatment and Organization . . . . .	13
Discussion of the Literature . . . . .	14
Key Terms . . . . .	14
Management Development Issues . . . . .	15
Management Training Methods . . . . .	18
Behavioral Role Modeling . . . . .	19
Classroom Lecture . . . . .	20
Computer Based Training . . . . .	20
Correspondence Course . . . . .	21
Interactive Video Disk . . . . .	21
On-the-Job Experiences . . . . .	22
Mentorship . . . . .	22
Seminar/Workshop . . . . .	23
Sensitivity Training . . . . .	24
Simulation Exercises . . . . .	24
Video Tape . . . . .	25
Wilderness Experiences . . . . .	25
Conclusion . . . . .	26
III. Methodology . . . . .	28
Overview . . . . .	28
Justification of Survey Approach . . . . .	28
Instrument . . . . .	29
Section 1 . . . . .	33

	Page
Section 2 . . . . .	33
Section 3 . . . . .	34
Section 4 . . . . .	34
Sample/Population . . . . .	34
Data Collection Plan . . . . .	35
Statistical Tests . . . . .	36
IV. Analysis . . . . .	37
Survey Response Summary . . . . .	37
Demographic Profile . . . . .	38
Investigative Question . . . . .	39
Section 1 . . . . .	40
Familiarity . . . . .	40
Effectiveness . . . . .	41
Section 2 . . . . .	46
Comparison of Section 1 and 2 . . . . .	50
Conclusion . . . . .	52
V. Conclusions and Recommendations . . . . .	53
Familiarity . . . . .	53
Most Effective Training Methods . . . . .	54
Most Ineffective Training Methods . . . . .	55
Effective Training Method for Each Human Skill . . . . .	56
Acting Consistently . . . . .	56
Communicating a Shared Understanding . . . . .	56
Emphasizing Performance . . . . .	57
Enthusiasm . . . . .	57
Foresight . . . . .	57
Inspiring Subordinates . . . . .	58
Introspection . . . . .	58
Performance Communication . . . . .	58
Planning and Organizing . . . . .	59
Providing Praise and Recognition . . . . .	59
Setting Goals . . . . .	60
Practical Implications . . . . .	60
Recommendations for Future Studies . . . . .	61
Conclusion . . . . .	62
Appendix A: Matching Development Needs to Training Methods Survey . . . . .	63
Appendix B: Demographic Data . . . . .	77
Appendix C: Section 1 Results Sorted by Mean . . . . .	80
Appendix D: Section 1 Results Sorted by Skill . . . . .	83

	Page
Appendix E: Section 1 Results Sorted by Training Method . . . . .	86
Appendix F: Section 2 Results Sorted by Mean . . . . .	89
Appendix G: Section 2 Results Sorted by Skill . . . . .	92
Appendix H: Section 2 Results Sorted by Training Method . . . . .	95
Appendix I: Analysis of Variance Procedure for Section 1 by Skill . . . . .	98
Appendix J: Analysis of Variance Procedure for Section 2 by Skill . . . . .	109
Appendix K: Correlation Analysis by Skill . . . . .	120
Bibliography . . . . .	142
Vita . . . . .	145



## List of Figures

Figure	Page
1. The Learning Process . . . . .	9

### List of Tables

Table	Page
1. Broad Skill Category Results . . . . .	6
2. Critical Incident Findings . . . . .	6
3. Top Sixteen Skills Requiring Training . . . . .	7
4. Levels of Evaluation . . . . .	10
5. Complete List of Skills Requiring Training . . . . .	30
6. Top Eleven Skills Requiring Training . . . . .	31
7. Training Method Familiarity . . . . .	40
8. Results from Section 1 . . . . .	42
9. Top Three Training Methods by Skill for Section 1 . . . . .	44
10. Results from Section 2 . . . . .	47
11. Top Three Training Methods by Skill for Section 2 . . . . .	48
12. Comparison of Sections 1 and 2 . . . . .	51

Abstract

This study identifies the most effective training methods for teaching a set of human skills to Air Force supply officers. The goal is to improve the performance of supply officers so they may function effectively as Chiefs of Supply. Members of the American Society of Training and Development and the National Society of Performance and Instruction were surveyed to collect data.

Eleven training methods served as the bases for this study: behavior modeling, classroom lecture, computer based training, correspondence course, on-the-job training, mentoring, simulation exercise, seminar/workshop, video tape, and wilderness experiences. Eleven human skills used in the study: acting consistently, communicating a shared understanding, emphasizing performance, enthusiasm, foresight, inspiring subordinates, introspection, performance communication, planning and organizing, providing praise and recognition, and setting goals.

The most effective training methods were identified for training each specific human skill. The mentoring training method was judged the most effective method for teaching a majority of the skills.

# EFFECTIVE TRAINING METHODS FOR TEACHING HUMAN SKILLS TO SUPPLY OFFICERS

## I. Introduction

### General Issue

Improving the quality of military officers is at the heart of the new Officer Professional Development (OPD) program. General Welch, USAF Chief of Staff, stated, "The Air Force leadership and the individual officer have a common interest--ensuring that every officer has the maximum opportunity to grow in professional competence and to realize that full potential" (OPD Guide, 1989:5). An important step along the path of professionalism is training. Training includes, training to be an Air Force officer, training to do a specific job, and training to grow and develop professionally.

In the Air Force, officers receive training through their commissioning source, technical training school, and professional military education. Does this training adequately prepare an officer for future positions? Can this training be improved upon so that the result is a better quality officer? Although this study does not attempt to answer these key questions for all officers, these issues will be addressed for Air Force supply officers.

## Background

Lt Col Boyer, an Air Force Research Associate at the Center for Creative Leadership, proposes that the Air Force institute a Company Grade Professional Development Program. He states that:

The Air Force's pre-commissioning programs are producing young officers ready and willing to serve, who have a high expectations about their entrance into military service. However, current research indicates that by the third year of active duty, many junior officers, while technically talented, are leadership impoverished. These deficiencies are evident in their abilities to motivate, provide negative feedback, assign responsibility, and give personal counseling to subordinates. (Boyer, 1989:1)

Lt Col Boyer's comments suggests motivation is not the problem. He states that the deficiencies are in the officer's abilities (i.e. capabilities). Major Dobias contends, in a research study for Air Command and Staff College,

that the failure to develop managerial capability among many officers can be attributed to inadequate Air Force guidance on management development, insufficient emphasis on management fundamentals in formal education and training schools, and lack of control over assurances that management development is achieved in a systematic manner. (Dobias, 1974:6)

He notes that supply officers' assignments and job positions may vary greatly. Because of this large variation in jobs, Major Dobias states that "the management development needs of these (supply) officers are immediate and quite extensive" (Dobias, 1974:17).

Capt Brodeur and Capt Currie, in an Air Force Institute of Technology thesis, Assessment of Initial Technical Training for USAF Supply Officers, conclude that

while Air Force policy dictates these subjects (military and civilian personnel management, briefing and writing techniques, and other administrative matters) should be taught at professional military education courses, it appears there may be gaps in the Air Force management education system. Supply officers' perceived need for management education should be explored. (Brodeur and Currie, 1984:76)

These three statements emphasize the need to improve the management development of company grade officers and, in particular, supply officers. The Air Force Supply Executive Board (AFSEB) has expressed concern over the skills of supply officers (McAlear, 1989:2). The AFSEB is made up of the major command Directors of Supply, including the Air National Guard and Air Force Reserve. These senior supply officers observed that many supply officers were lacking the skills required for one of the most important jobs in the career field, a Chief of Supply.

Supply officers must be able to fulfill the duties of both a Squadron Commander and a Chief of Supply. Supply officers are not only commanders, but also accountable officers. In fact, there are approximately 100 positions worldwide in which the officer fulfills both roles simultaneously. One role is the Squadron Commander and the other is the Chief of Supply. Normally, selection for these positions occurs when the officer reaches the rank of senior

Major or Lieutenant Colonel. The selection to this position is crucial to the future success of the officer. However, approximately two-thirds of the eligible supply officers are not selected to be Commanders/Chiefs of Supply. Two problems occur when a supply officer is not selected; 1) he is no longer promotable, and 2) there is a shortage of qualified Commanders/Chiefs of Supply.

The AFSEB wanted to improve the skills of company grade supply officers. "Everyone (at the AFSEB meeting) agreed that some set of essential skills were missing in the current junior managers (supply officers), but no one could articulate what the skill set was" (Peterson and McAlear, 1989:5). The first step is to determine what skills were missing and the next step is then to determine the best training methods for teaching those skills.

#### Focus of Study

This is a follow-on study to the AFIT thesis Developing Chiefs of Supply by Capt Dana McAlear. In her thesis, Capt McAlear identified a set of skills for which supply officers require training (McAlear, 1989:72). This study builds upon teaching each of these skills.

Capt McAlear identified the critical skills required for a supply officer to become a Chief of Supply. First, the broad skill categories important to Chiefs of Supply were determined by Lt Col Tim Peterson using a model developed by Robert Katz.

Katz identified three broad learnable skills; technical, human, and conceptual (Katz, 1974:90). Katz defines the technical skill as implying "an understanding of, and proficiency in, a specific kind of activity, particularly one involving methods, processes, procedures, or techniques" (Katz, 1974:91). The human skill "is the executive's ability to work effectively as a group member and to build cooperative effort within the team he leads" (Katz, 1974:91). The conceptual skill

involves the ability to see the enterprise as a whole; it includes recognizing how the various functions of the organization depend on one another, and how changes in any one part affect all the others. (Katz, 1974:93)

To determine the broad skill category missing for Chiefs of Supply, a three part survey of 23 Directors of Supply was conducted. The first two sections used the critical incident technique. The first section asked for an example (based on observation) of a successful Chief of Supply. The second section asked for an example (based on observation) of an unsuccessful Chief of Supply. The third section asked the respondent to rate the amount of time spent on each one of the three broad skills. The results of the third section are shown in Table 1. The greatest percentage of the Directors of Supply time is spent on the human skill.



Table 1.

Broad Skill Category Results  
Percent of Time Spent in Each Category

Skill	Range	Mean	Rank
Technical	5-50	22	3
Human	20-70	50	1
Conceptual	18-70	28	2

(Peterson and McAlear, 90:9)

The critical incidents were analyzed using a content analysis methodology. Each incident was placed in one of the broad skill categories by three independent raters.

Table 2.

Critical Incidents Findings

Skill	Mean Scores	Successful Incidents	Unsuccessful Incidents
Technical	22	12%	19%
Human	50	60%	57%
Conceptual	28	28%	24%

(Peterson and McAlear, 90:9)

The results of the first two sections are shown in Table 2. For both successful and unsuccessful incidents the critical skill is the human skill.

Based on the results of this survey, "it was decided that an examination of the human skill category was in order" (Peterson and McAlear, 1990:10). A list of potential human skills was developed based on an extensive literature

review. Based on this list of skills a survey was constructed. Supply officers (First Lieutenant through Major) and Chiefs of Supply were then surveyed to determine the important human skills for a Chief of Supply and to identify those skills which required training.

Table 3.

Top Sixteen Skills Requiring Training

Acting Consistently
Inspiring Subordinates
Clarifying Work Roles
Judgment
Emphasizing Performance
Solving Problems
Administering Discipline
Performance Communication
Managing Stress
Planning and Organizing
Providing Praise and Recognition
Communicating a Shared Understanding
Foresight
Enthusiasm
Introspection
Setting Goals

(McAlear, 1989:72)

The top sixteen skills requiring training are shown in Table 3. These skills are the combined top ten skills requiring training for Chiefs of Supply and supply officers.

Numerous factors affect the decision on the selection of the training method. For example, the characteristics of the learners and the type of material are two major factors. The selection of a training method is complicated by the fact that there may not be one best method. A combination

of methods may work best. Determining the best training method is like building a bridge. The training method is the brick. Of all the different sizes and types of bricks to choose from, it is the careful selection and positioning of the appropriate bricks which determines the success or failure of the bridge. The focus of this study is ensuring a strong bridge is built by matching the skills and the training methods.

The fundamental reason the Air Force provides training to individuals to improve their performance. The following algorithm shows performance as a function of ability times motivation (Vroom, 1964:4).

$$\text{PERFORMANCE} = f(\text{ABILITY} \times \text{MOTIVATION})$$

Licker defines the ability element as the capability to perform the task and the motivation element as the will to perform the task (Licker, 1985:11). An individual must have both the capability and the willingness to perform tasks. Although motivation is important, this study focuses on the ability element.

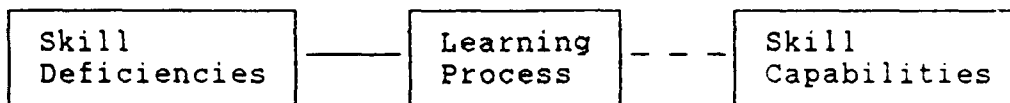
Ability is primarily obtained through either experience or learning. Experience can be a good teacher; on the other hand, it is often called the school of hard knocks. For example, obtaining the ability to operate a computer could be frustrating if it were acquired only through trial and

error. Learning is the other way to obtain abilities. Norman states that learning involves purposeful remembering and skillful performance. He defines learning as an "act of deliberate study of a specific body of knowledge, so that the material can be retrieved at will and used with skill" (Norman, 1982:3).

The learning process is a structured event in which skills are developed over time. This learning process can be described as a "black box" in which a skill deficiency is, hopefully, turned into a skill capability.

Figure 1.

The Learning Process



The desired outcome from a learning process is a new skill capability. However, the learning process does not always produce new skill capabilities. The critical consideration in designing the learning process is the selection of an appropriate training method. If the training method is not matched to the specific skill to be trained, then learning may not occur or its effectiveness may be greatly reduced. If learning does occur, it is generally not because of the design phase of the instructional system development process.

A well-known and widely used training evaluation approach was developed by Donald Kirkpatrick to measure the effectiveness of training. Table 4 shows the four levels and questions used to determine training effectiveness. The effectiveness of training is reduced when the training method is not matched to the skill. For example, teaching an individual to tie their shoes using the lecture method would be difficult and wasteful.

Table 4.  
Levels of Evaluation  
The Kirkpatrick Approach

Level	Questions
1. Reaction	Were the participants pleased with the program?
2. Learning	What did the participants learn in the program?
3. Behavior	Did the participants change their behavior based on what was learned?
4. Results	Did the change in behavior positively affect the organization?

(Phillips, 1987:36)

Another case of not matching the training method to the skill occurs when one training method is used to teach a variety of skills. Valuable resources are wasted when the training method is not matched to the skill. Matching a specific skill to the proper training method is the purpose of this study.

### Problem Statement

Capt McAlear identified specific skill deficiencies for supply officers. However, identifying the skills for which supply officers need training is only the first step. Training in each skill must be designed and delivered to all supply officers. This study attempts to answer the specific question: Given the identified skills, what training methods should be used to improve the development of supply officers to be Chiefs of Supply?

### Investigative Question

The following investigative question must be answered to determine the best training methods for teaching the identified human skills to supply officers: What training method(s) is/are most effective in teaching each specific human skill?

### Organization of Thesis

Chapter I contains the general issue, background, focus of study, problem statement, and investigative question.

Chapter II contains a review of the literature. First, the term management development is discussed. The training methods are then reviewed.

Chapter III contains the methodology of the study. The survey method and the survey instrument are reviewed.

Chapter IV contains the analysis of the survey data.

Chapter V contains a discussion of the study results,

implications, limitation of the study, and conclusions.  
Recommendations are made as to the most effective training  
methods, implementation strategies, and future research.

## II. Review of the Literature

### Introduction

The success or failure of any organization depends to a great extent on the quality and performance of its managers. The process of improving the abilities of managers to perform is known as management development.

An organization's survival depends on its managers. To develop its managerial talent many organizations invest an immense amount of resources into management development programs. Because of this large investment, a myriad of books and articles have been written on management development. An extensive review of the current literature on management development was conducted for this study.

Because management development is a broad topic, this literature review is limited to defining the key terms of management development, reviewing some management development implementation issues for organizations, and discussing the selected training methods for developing managers.

Method of Treatment and Organization. The body of this literature review consists of three sections. The first section discusses the key terms involving management development. The second section discusses issues for implementing a management development program in an organization. The third section reviews common training



methods for developing managers: behavioral role modeling, behavior modeling, classroom lecture, computer based training, correspondence course, interactive video disk, on-the-job training, mentoring, seminar/workshop, sensitivity training, simulation exercises, video tape, and wilderness experiences.

### Discussion of the Literature

Key Terms. Management development is "the whole, complex process by which individuals learn, grow, and improve their abilities to perform professional management tasks" (Wexley and Baldwin, 1986:277). This broad definition includes all areas in the management development process. Three specific terms describe the overall management development process: managerial education, management training, and on-the-job experiences. Managerial education is defined as "those activities traditionally conducted by colleges and universities that focus on developing a broad range of managerial knowledge and general conceptual abilities" (Wexley and Baldwin, 1986:278). The Management and Behavior in Organizations course in the master's degree program at the Air Force Institute of Technology is an example of managerial education.

Management training is defined as a subset of management development that is positionally and organizationally specific to individuals already in the ranks of management (Keys and Wolfe, 1988:205-206).

Management training differs from management education in that training covers those activities designed to impart specific managerial skills (e.g., time management, delegation) which would be immediately applicable in a particular organizational setting. (Wexley and Baldwin, 1986:280)

Charles Watson defines training as formal classroom learning activities, and development as all learning experiences, both on and off the job, including formal classroom training. Watson's distinction between training and development emphasizes the notion that formal classroom learning is minimally effective at best if not consistent with and supported by on-the-job experience and learning (Watson, 1979:5).

Many researchers suggest that most management development occurs on the job (Wexley and Baldwin, 1986:285). On-the-job development occurs through experience, coaching, and rotational assignments and is supported by in-house programs and university programs (Digman, 1978:71). Organizations frequently use on-the-job training because it is inexpensive. Organizations should not use on-the-job training as a substitute for carefully designed training and development programs (Wexley and Latham, 1981:107).

Management Development Issues. In a study to determine how ten well-managed organizations developed their executives, Lester Digman concluded that no two

organizations had the same approach to developing their managers.

Perhaps the conclusion should be that there is no best way to develop managers, and that the companies are using what has worked in the past and what they feel will work for them in the future. (Digman, 1978:68)

Wexley and Baldwin point out four management development issues that should be addressed by organizations. First, they agree with Digman in that there is no quick or simple answer to the question of how best to develop managers. Second, they argue organizations should develop their own specific developmental objectives and evaluate the outcomes of their development programs. Third, management development activities should not be independent of, or in conflict with, organizational objectives. Finally, they point out there is little evidence to prove that managerial development actually increases the performance of managers (Wexley and Baldwin, 1986:287-289).

Little empirical research has been conducted that shows management development programs lead to improved organizational performance (Wexley and Baldwin, 1986:288). Some programs may even be ineffective or misdirected. One of the reasons training programs may be ineffective is that the training methods were not matched to the skills. The result is that organizations waste valuable time and money. Graham and Mihai suggest a four-step process to reduce the chance

of developing a program that is ineffective or unnecessary (Graham and Mihal, 1986:57-64). This process includes:

- 1) linking programs to business plans;
- 2) validating program content;
- 3) making programs responsive to individual needs;
- 4) encouraging the transfer of training. (Graham and Mihal, 1986:57-64)

The first step in this process is to ensure the management development program is linked to the current business plan. The timing of the management development program should not conflict with any other changes in the business plan. The development plan should be relevant to the business and dependent on changes in the organization. A focus group consisting of key executives should be formed to establish guidelines for the management development program.

The second step is to validate the content of the program against the tasks managers will be required to perform. It is in this step that the selection of the training method should be matched to the training deficiencies.

The third step is to make the management development program responsive to the needs of the individual managers. This responsiveness can be accomplished by avoiding the lock-step teaching method. For example, to preclude each manager from having to complete all material, the program can be developed in two modules, a core module appropriate for all managers, and a specialized technical skill building

module available only for those managers who need it. Another technique responsive to the needs of individuals is allowing them to "test out" of certain modules in the program.

Finally, the last step is to ensure the program results in improved performance. Relapse prevention, periodic follow-ups, and training needs assessments are ways to encourage the transfer of training to the job (Graham and Mihal, 1986:57-64).

Keys and Wolfe found that one of the problems in management development was that different levels of management required different subject material.

Based on survey results, studies have found the greatest training needs for entry level managers to be communications and organizing skills, middle managers were most in need of people handling and problem solving skills, and senior executives needed training in finance, accounting, and handling pressure. (Keys and Wolfe, 1988:208)

#### Management Training Methods

The training methods selected for this study were chosen based on upon the literature review, their applicability to the Air Force environment, their commonality, and the authors judgment. The training methods selected appeared consistently in the literature and are frequently used to teach human skills. Although additional instructional formats were considered, eleven training methods selected. Other instructional formats considered, but not included were: experiential learning, role play,

programmed instruction, and case study or case method. These instructional formats are considered to be training strategies or techniques.

Behavioral Role Modeling. Behavioral role modeling (also called applied learning) is related to the larger family of behavior modification. Behavioral modeling is learning through observing and imitating the actions of others (Wexley and Latham, 1981:69).

Behavioral role modeling consists of learning some points or principles, observing a model that utilizes the principles (often with the aid of a film), rehearsing the procedures by role playing, and receiving social reinforcement from the trainer or other members of the group. (Goldstein, 1980:260)

Role playing illustrates dramatically the gap between knowledge and the ability to apply it (Watson, 1979:179).

Many organizations now use some form of behavior modeling. Behavior modeling is similar to behavior role modeling. The behavior modeling method is "based on several widely accepted principles of adult learning: modeling or imitation, behavioral rehearsal or practice, and reinforcement or reward" (Bard, 1987:243).

Research shows behavioral role modeling can be helpful in improving the human-relations skills of managers (Wexley and Baldwin, 1986:280). Additional research showed that a modeling based training program for first-level supervisors improved organizational productivity and efficiency (Wexley, 1984:534).

Although a few studies have indicated that behavioral role modeling can be used successfully, there is very little evidence to prove that it is effective (Wexley, 1984:537)

Classroom Lecture. The lecture is a common method of instruction. Nadler and Nadler define lecture as "a well-prepared one way presentation by an individual resource person" (Nadler and Nadler, 1977:255). The lecture method allows the instructor to cover a great deal of information, in the least amount of time. There are no questions, no discussion, and no interruptions. The learners play a passive role and the instructor does all of the talking. "It is difficult for the lecturer to present material that is equally cogent to individuals who have wide differences in ability, attitude, and interest" (Goldstein, 1986:188). John Randall states that lectures may be used to introduce a new subject or as a summary at the end (Randall, 1983:127). Goldstein points out that "with the increasing technology and size of organizations, many are finding that the live lecture method is inadequate to handle the number of people who need to be trained" (Goldstein, 1986:209).

Computer Based Training. Computer based training has had recent rapid growth mainly because of the increase in the use of personal computers. Most researchers agree that computer based training can reduce training time (Goldstein, 1980:261; Wexley, 1984:535). Computer based training also offers great promise for more flexible learning environments (Keys and Wolfe, 1988:213). In fact, one of its major

claims is that it individualizes the learning experience for each learner's pace and style (Wexley and Baldwin, 1986:282).

Computer based training may have some disadvantages. It has been charged, but not supported, that the loss of personal interaction with the computer may hinder development of human interactive skills (Keys and Wolfe, 1988:213). If this is true, computer based training may not be the most effective training method for a skill like performance communication.

A more powerful use of computer based training may be to combine it with expert systems. In theory, this combination would be a dynamic tool in teaching judgement and in capturing of hard to acquire knowledge. However, "comparative studies of the effectiveness of training using expert systems are not available in the literature" (Keys and Wolfe, 1988:213).

Correspondence Course. A correspondence course is a paper-based instructional method in which materials are sent to a learners at their work site. The material is completed by the learner without an instructor and returned to the sender for grading and feedback.

Interactive Video Disk. Interactive Video Disk (IVD) uses an optical laser video disc with a microcomputer. Currier states IVD combines the "emotional power of



television and the computer" (Currier, 1983:51). Porter provides a good description of an IVD system.

IVD hardware systems, typically contain three components: a computer, a monitor, and a video disc player. Software is composed of one or more computer discs and a video disc. The computer allows immediate access to any portion of the material contained on the video disc. Video discs can store still frames and audio recordings as well as video material. (Porter, 1990:554)

On-the-Job Experiences. On-the-Job training (OJT) is one of the most frequently used training methods, but it "is also one of the most poorly implemented" (Sullivan, 1985:118). OJT involves "activities conducted at the work site to help the learner develop job-related competencies while engaging in productive work at the same time" (Bard, 1987:277). OJT should involve a carefully designed and implemented formal program. However, OJT is frequently an informal procedure in which the learner watches a more experienced employee. Goldstein states "that there is no reason why a carefully designed on-the-job instructional system should not be as successful as any other approach" (Goldstein, 1986:186).

Mentorship. Mentorship is an important training and development tool for organizations (Hunt and Michael, 1983:475). Organizations gain a better educated, better paid, less mobile, and more satisfied manager through the mentoring process (Hunt and Michael, 1983:478). Mentorship is generally used to describe "informal, intense, personal relationships where senior persons have important career

molding influence on younger people in the early phases of their adult professional careers" (McCauley, 1986:9). Mentorship is considered a more intense relationship than coaching. Mentoring relationships not only help proteges learn technical knowledge, but the relationships also aid them in learning the organizational ropes, developing a sense of competence and effectiveness, and learning how to behave at successive management levels (Hunt and Michael, 1983:478). In successful mentorship programs, the mentor and the protege are carefully matched to ensure they are compatible.

Research suggests that protege learning increases when both parties exhibit high levels of trust, informality, openness with information, interaction frequency, and people orientation tempered with professional orientation. (Wexley and Baldwin, 1986:286)

Unfortunately, mentoring programs may not always work well for organizations.

Despite the perceived importance of mentoring for management development, formalized mentoring programs have shown mixed results, with programs sometimes resulting in less than expected levels of learning and/or trainee satisfaction (Wexley and Baldwin, 1986:286)

Other management training methods may be better suited to the specific needs of the organization.

Seminar/Workshop. A seminar is a "discussion involving several individuals, all of whom have something to offer. However, there is one seminar leader who also serves as a resource" (Nadler and Nadler, 1977:256). Webster's

dictionary defines workshop as "a usually brief intensive educational program for a relatively small group of people that emphasizes participation in problem solving." Because these terms are similar, many individuals use these terms interchangeably.

Some advantages of (seminar/workshop) classroom learning identified by Linda Standke are: (1) You will learn from an expert; (2) You will work with your peers; (3) You'll be in a learning environment; (4) You will have time to practice and make mistakes; (5) You will have an opportunity to watch the process as well as learn content; (6) You will get a certificate of completion (Bard, 1987:53).

Sensitivity Training. Sensitivity training involves becoming more aware of your actions affect on others in a social context. Peter Vaill describes sensitivity training as:

The collection of methods for improving the individual's sensitivity to himself and others. Although a large number of variations exist, the common ingredients seem to be: (1) the guidance of a trained person or persons; (2) intense interpersonal experience by the trainee; (3) a relatively protected environment, free from ordinary pressures and distractions. (Vaill, 1973:245)

Simulation Exercises. A simulation is a replication of a real life event used to train a task or skill that is required on the job. "In their simplest forms, simulations include in-basket exercises, case studies, role plays, and

more extensive group learning designs" (Bard, 1987:284). Goldstein points out some of the reasons for using simulations are controlled reproducibility, safety considerations, utilization of learner considerations, and cost (Goldstein, 1986:214-215).

Video Tape. Video tape involves the delivery of instructional materials through the use of a recording of audio and video images. DuBois and Mayo point out that "telling is not teaching" and that video does not usually hold the attention of learners as well as a live lecture. "Video should capitalize on its strong points: motion; color; drama; and incorporation of graphics, still photography, and segments from motion-picture film" (Mayo, 1987:128).

Wilderness Experiences. A wilderness experience is a outdoor lab which requires the learner to participate in a set of physical challenges. The experience usually involves both individual and group challenges. "Taking managers out of the corporate comfort zone into the outdoors to confront physical challenges is the theory behind wilderness labs" (Long, 1984:58). Reola McLeod, director of the Corporate Development Program, places the value of wilderness lab in this content:

What this program has to offer the business community is a union between the intellectual ideas and theories presented in traditional management development programs, and the impact that it has when you put your physical and

emotional selves behind the theories. (Long, 1984:60)

The military has used the wilderness experience training method for many years. In the Air Force, a wilderness exercise called "Project X" is currently used by the United States Air Force Academy, the Reserve Officers Training Corp, the Officer Training School, and Squadron Officer School. Project X consists of a set of physical challenges involving a small group students designed to force interaction between the members. The leadership and interpersonal skills displayed during the exercise are reviewed after the exercise is complete.

### Conclusion

Management development is important to the success of organizations, and in fact, an organization's very survival may depend on how well its managers are developed. The term "management development" is broad in scope and includes managerial education, management training, and on-the-job experiences.

Although there is no best way to develop managers, step-by-step processes have been developed that will help organizations establish effective and necessary management development programs. Management development programs should be linked to the business plan and the content of the program should be validated. The program must also be

responsive to the needs of individuals, and encourage the transfer of learning.

Behavioral role modeling, classroom lecture, computer based training, correspondence course, interactive video disk, on-the-job training, mentoring, seminar/workshop, sensitivity training, simulation exercises, video tape, and wilderness experiences are management training methods that organizations can use to develop managers. Although these training methods may have some disadvantages or may not be fully proven, each method can help organizations develop better managers.

The required human skills have been previously identified and now this literature review has provided eleven possible training methods. Any of the above mentioned training methods could deliver the human skills training required by supply officers. What training methods is the most effective in teaching each specific human skill? The next chapter discusses the methodology used to answer this question.

### III. Methodology

#### Overview

This chapter describes the methodology used in this study. It provides information on the justification of the survey approach, the survey instrument, the sample and population, the data collection plan and statistical tests for this study.

#### Justification of Survey Approach

The survey approach was selected to obtain primary data to answer the investigative questions. The mail survey was selected because of the large size and geographic spread of the population. The other approaches to obtain primary data (observation, experimentation, personal interviews, telephone interviews, and personally administered survey) would have taken additional time and expense. Another method to collect data would be to select effective long-term companies and observe the training method(s) used to teach specific skills. Although this could be an effective data gathering technique, it obviously would be more expensive and take much longer than a mail survey.

Emory states that an advantage of using mail surveys is that you can contact respondents who might otherwise be inaccessible (Emory, 1985:172). The mail survey also allows the "subjects to have more time to think and respond when they want to" (Wallzer and Wiener, 1978:290).

In a mail survey, the respondent can take more time to collect facts, talk with others, or consider replies at length than is possible with either the telephone or personal interview. (Emory, 1985:172)

Emory notes that a major weakness of surveying is non-response (Emory, 1985:172). To improve the response rate optical scanner forms were not used. All responses were written directly on the survey itself.

#### Instrument

The survey instrument was developed to answer the investigative question: What training method is most effective in teaching each human skill? In addition, the survey collects information on the respondent's familiarity with each of the training methods and background. Two important decisions were made prior to the survey development. The first decision was to determine which skills to include in the survey. The second decision was to determine if the respondents would provide the training methods or if a pre-determined list should be included.

Captain McAlear recommended that a total of twenty one skills be trained (McAlear, 1989:103). Table 5 contains a complete list of the skills recommended to be trained.



Table 5.

Complete List of Skills Requiring Training

Acting Consistently
Trust
Listening
Providing Praise and Recognition
Emphasizing Performance
Enthusiasm
Clarifying Work Roles
Administering Discipline
Managing Stress
Foresight
Inspection
Communicating a Shared Understanding
Truthfulness
Judgement
Solving Problems
Inspiring Subordinates
Delegation
Facilitating Teamwork
Performance Communication
Planning and Organizing
Setting Goals

Although training may be required for all of these skills, the number was too large for this study. The list needed to be reduced to only the most important skills. Because Captain McAlear surveyed two populations, a ranking of the skills requiring training was available for both supply officers and Chiefs of Supply. Given both rankings, the Chief of Supply ranking was considered the most important. The purpose of this study is to prepare supply officers to become Chiefs of Supply. The training requirements identified by supply officers are important; however, these may not be the skills required by a Chief of Supply. The

training requirements identified by the Chiefs of Supply are the skills required for target position. This is not to imply that training for supply officers is not important, but for this study the training of interest is for the Chief of Supply position.

The top ten (because of a tie, eleven skills are included) skills requiring training as rated by the Chiefs of Supply were selected for this study. These skills were also in the top 25 skills requiring training for supply officers. Table 6 lists the top eleven skills with the training need ranking for the Chief of Supply (COS) and the supply officer (SO) groups.

Table 6.

Top Eleven Skills Requiring Training

SKILL	COS	SO
Inspiring Subordinates	1	3
Providing Praise and Recognition	2	12
Acting Consistently	3	1
Communicating a Shared Understanding	4	25
Foresight	5	20
Emphasizing Performance	6	6
Performance Communication	7	8
Enthusiasm	8	21
Introspection	9	15
Planning and Organizing	10	10
Setting Goals	10	17

Eleven training methods were pre-selected to be included in the survey. This selection was based upon the review of the literature. The author decided not to ask the respondents to determine the training methods. If the training methods determination had been left up to the respondents a wide range (almost unlimited) of methods could have been written in, many of which might not have been appropriate in an Air Force environment. Each method would also need a common definition. It would be impractical for each respondent to provide a definition.

The eleven training methods selected are common methods in use and could be implemented in the Air Force. A weakness of pre-selecting the training methods is that the range of information obtained is constrained. To offset this limiting effect an opened-ended question was included in the survey. For example, if there was a training method the respondent believed was not included, it could be noted in the response to the open-ended question. The structure of the survey was also enhanced by using the pre-selected training methods. The result is a shorter survey which, it was hoped, would improve the quality of the responses.

The survey consists of four sections totaling fourteen pages (Appendix A). The first page is the cover letter. The next page provides general instructions and definitions for each of the eleven training methods.

Section 1. The first section provides the respondent with the human skill and a definition of that skill. The eleven training methods are listed below each skill. The respondent is asked to use a six point Likert scale to rate how effective each training method is in teaching the skill. The Likert scale contains the following categories:

- (1) Extremely Ineffective
- (2) Very Ineffective
- (3) Ineffective
- (4) Effective
- (5) Very Effective
- (6) Extremely Effective

This evenly numbered scale does not provide a mid-point. The respondents are forced to make a choice between effective and ineffective. The purpose is to acquire as much information as possible as to the effectiveness or ineffectiveness of the methods. If there were a mid-point no information would be gained when the respondent selected it.

Section 2. The second section asks the respondent to rank the top and bottom three training methods for the same eleven skills. This section provides a differentiation between the training methods. For example, a respondent in section one may choose three training methods as extremely effective. The second section provides a differentiation between the methods by asking the respondent to rank the methods. The respondents could have been asked to rank all of the training methods, but the middle grouping does not provide as much information as ranking the top and bottom

methods. It is also easier to differentiate between the top and bottom of a ranking than it is to differentiate among the middle items. Including all of the rankings in the survey would have required fifty-five additional questions. The survey is shorter and easier to complete without including the ranking of all the methods.

Section 3. This section contains nine questions relating to the background information of the respondent.

Section 4. This section asks the respondent to write in any other training techniques which is useful in teaching human skills. This open-ended question allows the respondent to provide any additional information about training methods that was not covered in the previous sections. The next question ask if the respondent is willing to be interviewed by phone after the data has been compiled. The last question asks the respondents if they would like to receive a summary of the results.

#### Sample/Population

The population of interest for this survey is experienced trainers or educators who are involved with the Department of Defense. Within the Department of Defense there is no known organization from which this information can be obtained. The total size of the population is unknown. However, it is the author's opinion that the number of trainers or educators involved with the Department of Defense is extremely large. The task of obtaining the

names and addresses of individuals who fit in this category could have been extremely difficult using military sources. For example, in the Air Force there are many different organizations with individuals in the target population (Air Training Command, Air University and other major commands). Both military and civilians in various positions fit into the population.

The sample was selected from the membership of the American Society for Training and Development (ASTD), and the National Society for Performance and Instruction (NSPI). The ASTD membership is divided into numerous industry groups. The Military Trainers, Air Force, Army, and Navy industry groups were selected for this survey. A total of 319 mailing labels was used from the ASTD. The NSPI is also divided into groups. The military group was selected for this survey. A total of 90 mailing labels was used from the NSPI. Additional mailing labels were provided from professional contacts made by the author.

#### Data Collection Plan

Each survey package contained one cover letter, one survey, and a pre-paid pre-addressed return envelope. No optical scan forms were provided. The outside mailing envelopes were addressed using the mailing labels from ASTD and NSPI.

Once the survey was returned, it was checked to ensure it was correctly and completely filled out. Only surveys

that were correctly and completely filled out were used. The data from each survey was input directly into computer file using a keyboard.

### Statistical Tests

The statistical analysis was conducted on the AFIT computer using the SAS System for Elementary Statistical Analysis software. First a SAS data set was created and checked for errors using the PROC UNIVARIATE and FREQ procedures. The PROC UNIVARIATE procedure provides an extensive summary of descriptive statistics and the FREQ option produces a frequency table. The PROC MEANS procedure provided the means of data. The CORR procedure computed correlation coefficients to measure the strength of the relationship between section 1 and section 2 of the survey. The PROC ANOVA procedure produced the analysis of variance. Multiple comparisons of the means were produced with the t option in the MEANS statement. This option produced pairwise t tests, equivalent to Fisher's least-significant-difference test.

#### IV. Analysis

This chapter presents the results of the analysis of the survey data. First, the survey responses are summarized followed by a demographic profile of the typical respondent. The remainder of the chapter is devoted to discussing the results of the analysis of the data.

##### Survey Response Summary

One hundred and sixty five surveys were returned from the original mailing of 420 surveys for an overall return rate of 39 percent. Thirteen unusable surveys were returned that were either erroneously marked or incomplete. One hundred and fifty two useable surveys were returned for a useable return rate of 36 percent. Emory states that a return rate of 30 percent is satisfactory for a mail survey without a follow-up (Emory, 1985:172).

The useable return rate of 36 percent is considered to be very good, given the length and difficulty of the survey. The survey consisted of a total of 35 questions, requiring a minimum of 207 separate answers. The survey was difficult because it required the respondents to think about a specific skill and interpret the effectiveness of eleven different training methods. This is an extremely time consuming survey, given Emory's rule of thumb that the respondent should be able to answer all the questions in no more than 10 minutes (Emory, 1985:172). Verbal and written



comments made to the author indicate some respondents spent over an hour completing the survey.

#### Demographic Profile

The average survey respondent is a civilian who is not employed by the federal government. Although the average respondent is a civilian not employed by the federal government (41.4 percent), the number of surveys returned by government employees was actually higher (49.3 percent). The federal government employee return rate is higher, possibly because the survey was targeted to employees involved in the Department of Defense. The federal government employees are divided into two groups: the civilian (federal government employee) group was 32.2 percent of the total, and the military group was 17.1 percent. The typical respondent (46.7 percent) currently works in an organization that is not affiliated with the Department of Defense. However, the total respondents in the military services and another agencies of the Department of Defense is 53.3 percent. Almost all of the respondents not affiliated with the Department of Defense were contractors for the Department of Defense.

The average respondent has 14 years and 1 month experience as a trainer and has completed a master's degree (26.3 percent) or some work beyond a master's degree (26.3 percent). The typical respondent considers his or her current job to be extensively involved in training (91.4

percent) and spends 100 percent of the work week involved in training or education (42.1 percent). The typical respondent has moderately (28.3 percent) to broadly (32.9 percent) developed training skills attained through professional development courses or workshops. The typical respondent is also a member of the American Society of Training and Development (ASTD) (76.3 percent) or another similar professional organization. Only 2.6 percent of the respondents were not a member of any management or training organization.

#### Investigative Question

The survey was designed to answer the investigative question: What training method(s) is/are most effective in teaching each specific human skill? The survey was designed with two sections addressing this question. The purpose was to provide an additional check on the data and increase the reliability of the results. The survey consisted of four sections. Section 1 asked how familiar the respondent was with each training method and then had the respondent use a six point Likert scale to rate the effectiveness of each training method. Section 2 asked the respondent to rank order the top and bottom three training methods. Section 3 contained demographic questions. Section 4 contained a place for the respondents add any additional comments and include their name and address.

Section 1. Section 1 of the survey first asked the respondents if they were familiar with each of the eleven training methods. They were then asked to rate each method based on its effectiveness using a six point Likert scale.

Familiarity. Familiarity with the training method increases the likelihood that the respondent is able to make a valid determination of the effectiveness of that specific training method.

Table 7 presents the training methods in rank order starting with the highest familiarity percentage. It is

Table 7.

Training Method Familiarity

Number and Percent Indicating Familiarity

Training Method	#	% (152)	% (133)
Classroom Lecture	132	86.8	99.2
Seminar/Workshop	127	83.6	95.5
On-the-Job Experiences	126	82.9	94.7
Video Tape	122	80.3	91.7
Computer Based Training	117	77.0	88.0
Correspondence Course	113	74.3	85.0
Mentoring	113	74.3	85.0
Simulation Exercise	113	74.3	85.0
Behavior Modeling	102	67.1	76.7
Interactive Video Disk	87	57.2	65.4
Wilderness Experiences	48	31.6	36.1

likely that the number of respondents familiar with the training methods is low, because 21 surveys were returned in which the respondent did not indicate familiarity with any of the methods. Two respondents were contacted to clarify the non-response to the familiarity questions. Both respondents indicated that they had missed the question and then provided appropriate answers. Additional respondents were not contacted due to the lack of time or because they did not include their name, address or telephone number.

The position of the familiarity question on the survey may have led respondents to believe it was part of the instructions. A total of 133 respondents indicated they were familiar with at least one of the training methods. If 133 is used as the divisor instead of 152, the classroom lecture method would have a familiarity rating of 99 percent. Familiarity with the wilderness experience training method would increase from 31.6 percent to 36 percent.

Training Method Effectiveness. The mean was computed for each training method. Overall the highest mean score was 5.22 for the mentoring training method. On the Likert scale, a rating of 5 indicated "effective" and a rating of 6 indicated "extremely effective". The lowest mean was 1.97 for the correspondence course training method. On the Likert scale, a rating of 2 indicated "very ineffective" and a rating of 1 indicated "extremely

ineffective". There were eleven training methods matched to eleven human skills for an overall total of 121 specific groupings. For these groups, seventy two of the means were above the midpoint (3.50) of the Likert scale and forty nine of the means were below the midpoint.

Table 8.

Results from Section 1

Skills Grouped by Top Three Training Methods

<u>Acting Consistently</u> <u>Emphasizing Performance</u> <u>Inspiring Subordinates</u> <u>Performance Communication</u> <u>Providing Praise and Recognition</u> Mentoring Behavior Modeling Simulation Exercise
<u>Communicating a Shared Understanding</u> Simulation Exercise Mentoring Behavior Modeling
<u>Enthusiasm</u> Mentoring Behavior Modeling On-the-Job Training
<u>Foresight</u> <u>Introspection</u> <u>Setting Goals</u> Mentoring Simulation Exercise On-the-Job Training
<u>Planning and Organizing</u> Simulation Exercise Mentoring On-the-Job Training

The top four highest means were for the mentoring training method. The nine lowest means were for the correspondence course training method. As a group, this shows the most effective and ineffective training methods; however, it is much more important to look at each skill and the training method rated most effective for that skill. Table 8 shows the top three most effective training methods for each skill. The skills with the same top three rankings are grouped together. The skills are listed first followed by the top three training methods.

Table 9 summarizes the effectiveness results for section 1 of the survey. The top three training methods are presented by skill with each mean and standard deviation. The means with an asterisk are not significantly different within that skill. The analysis of variance results is Appendix I.

Table 9. Top Three Training Methods by Skill  
for Section 1 (Mean & Standard Deviation)

Acting Consistently

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.14*	.84
Behavior Modeling	5.13*	.96
Simulation Exercise	4.92	.88

Communicating a Shared Understanding

TRAINING METHOD	MEAN	STANDARD DEVIATION
Simulation Exercise	5.00*	.96
Mentoring	4.94*	.91
Behavior Modeling	4.78*	1.12

Emphasizing Performance

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.17*	.90
Behavior Modeling	5.06*	1.02
Simulation Exercise	4.88	.98

Enthusiasm

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.09*	.95
Behavior Modeling	5.05*	1.12
On-the-Job Training	4.76	1.15

Means with an asterisk are not significantly different.

Table 9. Top Three Training Methods by Skill  
for Section 1 (Mean & Standard Deviation) (Cont.)

Foresight

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.06	.90
Simulation Exercise	4.79*	1.02
On-the-Job Training	4.71*	1.12

Inspiring Subordinates

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.21*	.78
Behavior Modeling	5.13*	1.05
Simulation Exercise	4.92	.93

Introspection

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.03	1.01
Simulation Exercise	4.70*	.95
On-the-Job Training	4.67*	1.16

Performance Communication

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.02*	1.00
Behavior Modeling	5.00*	1.00
Simulation Exercise	4.92*	.96

Means with an asterisk are not significantly different.



Table 9. Top Three Training Methods by Skill  
for Section 1 (Mean & Standard Deviation) (Cont.)

Planning and Organizing

TRAINING METHOD	MEAN	STANDARD DEVIATION
Simulation Exercise	5.03*	1.07
Mentoring	4.96*	1.03
On-the-Job Training	4.76	1.09

Providing Praise and Recognition

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.22*	.80
Behavior Modeling	5.12*	.97
Simulation Exercise	5.00	.91

Setting Goals

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	5.13*	.88
Simulation Exercise	4.98*	.99
On-the-Job Training	4.80	1.04

Means with an asterisk are not significantly different.

Section 2. The questions in this section asked the respondents to rank the top and bottom three training methods in terms of their effectiveness. A mean was computed by assigning points to the ranked training methods. If the training method were the respondent's first choice, it received three points. A second choice training method received two points and a third choice training method received one point. The last choice training method

received a negative three points. The tenth and ninth choices received negative two points and negative one point, respectively. The training methods that were not ranked were assigned zero points. The total points were then divided by the total number of respondents. The results for section 2 were similar to the results from section 1.

Table 10.

Results from Section 2

Skills Grouped by Top Three Training Methods

<u>Emphasizing Performance</u> <u>Enthusiasm</u> <u>Inspiring Subordinates</u> <u>Performance Communication</u> Mentoring Behavior Modeling Simulation Exercise
<u>Communicating a Shared Understanding</u> Simulation Exercise Mentoring Behavior Modeling
<u>Acting Consistently</u> <u>Providing Praise and Recognition</u> Behavior Modeling Mentoring Simulation Exercise
<u>Foresight</u> <u>Introspection</u> Mentoring Simulation Exercise On-the-Job Training
<u>Planning and Organizing</u> <u>Setting Goals</u> Simulation Exercise Mentoring On-the-Job Training

Table 11. Top Three Training Methods by Skill  
for Section 2 (Mean & Standard Deviation)

Acting Consistently

TRAINING METHOD	MEAN	STANDARD DEVIATION
Behavior Modeling	1.57*	1.27
Mentoring	1.50*	1.22
Simulation Exercise	1.15	1.16

Communicating a Shared Understanding

TRAINING METHOD	MEAN	STANDARD DEVIATION
Simulation Exercise	1.40*	1.14
Mentoring	1.23*	1.28
Behavior Modeling	1.03	1.27

Emphasizing Performance

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.42*	1.24
Behavior Modeling	1.24*	1.36
Simulation Exercise	1.13	1.22

Enthusiasm

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.48*	1.22
Behavior Modeling	1.42*	1.33
Simulation Exercise	.90	1.05

Means with an asterisk are not significantly different.

Table 11. Top Three Training Methods by Skill  
for Section 2 (Mean & Standard Deviation) (Cont.)

Foresight

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.60	1.29
Simulation Exercise	1.17*	1.15
On-the-Job Training	.93*	1.36

Inspiring Subordinates

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.45*	1.29
Behavior Modeling	1.33*	1.33
Simulation Exercise	.95	1.12

Introspection

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.48	1.36
Simulation Exercise	1.09	1.18
On-the-Job Training	.75	1.28

Performance Communication

TRAINING METHOD	MEAN	STANDARD DEVIATION
Mentoring	1.34*	1.29
Behavior Modeling	1.28*	1.39
Simulation Exercise	1.24*	1.27

Means with an asterisk are not significantly different.

Table 11. Top Three Training Methods by Skill  
for Section 2 (Mean & Standard Deviation) (Cont.)

Planning and Organizing

TRAINING METHOD	MEAN	STANDARD DEVIATION
Simulation Exercise	1.36	1.24
Mentoring	1.01*	1.43
On-the-Job Training	.80*	1.36

Providing Praise and Recognition

TRAINING METHOD	MEAN	STANDARD DEVIATION
Behavior Modeling	1.44*	1.33
Mentoring	1.36*	1.27
Simulation Exercise	1.23*	1.11

Setting Goals

TRAINING METHOD	MEAN	STANDARD DEVIATION
Simulation Exercise	1.30*	1.33
Mentoring	1.23*	1.28
On-the-Job Training	.82	1.43

Means with an asterisk are not significantly different.

Comparison of Section 1 and 2. Section 1 asked the respondents how effective each method was in teaching each skill. Section 2 asked the respondent to rank order the top and bottom three methods. Although the questions asked were similar, the focus of the questions was different. In the first section the focus is on the effectiveness of a specific method. In the second section the focus is on the order or ranking of one method compared to another method.

Table 12.

## Comparison of Sections 1 and 2

## Rank of Training Method Mean by Skill

# = Survey Section Number  
 AC = Acting Consistently  
 CS = Commun. a Shared Understanding  
 EP = Emphasizing Performance  
 EN = Enthusiasm  
 FO = Foresight  
 IS = Inspiring Subordinates  
 IN = Introspection  
 PC = Performance Communication  
 PO = Planning & Organizing  
 PR = Providing Praise & Recognition  
 SG = Setting Goals

Training Methods	#	AC	CS	EP	EN	FO	IS	IN	PC	PO	PR	SG
Behavior Modeling	1	2	3	2	2	4	2	4	2	4	2	4
	2	1	3	2	2	4	2	4	2	5	1	4
Classroom Lecture	1	9	8	9	8	8	9	9	9	8	9	8
	2	9	8	8	9	8	9	8	8	8	9	8
Computer Based Tng	1	10	10	10	10	10	10	10	10	7	10	9
	2	10	10	10	10	10	10	10	10	9	10	9
Correspondence Course	1	11	11	11	11	11	11	11	11	11	11	11
	2	11	11	11	11	11	11	11	11	11	11	11
Interactive Video Disk	1	6	7	7	7	7	7	7	7	6	7	7
	2	6	7	7	7	7	7	7	6	6	6	7
On-the-Job Training	1	4	4	4	3	3	4	3	4	3	4	3
	2	4	4	4	4	3	4	3	4	3	4	3
Mentoring	1	1	2	1	1	1	1	1	1	2	1	1
	2	2	2	1	1	1	1	1	1	2	2	2
Simulation Exercise	1	3	1	3	4	2	3	2	3	1	3	2
	2	3	1	3	3	2	3	2	3	1	3	1
Seminar/Workshop	1	5	5	5	5	5	5	5	5	5	5	5
	2	5	5	5	5	5	5	5	5	4	5	5
Video Tape	1	8	9	8	9	9	8	8	8	10	8	10
	2	7	9	9	8	9	8	9	9	10	8	10
Wilderness Experiences	1	7	6	6	6	6	6	6	6	9	6	6
	2	8	6	6	6	6	6	6	7	7	7	6

Table 12 shows a comparison of the results from section 1 and section 2 of the survey. The correlation analysis

between the results of section 1 and section 2 is  
Appendix K.

### Conclusion

This chapter presented the data collected by the survey instrument. The survey collected data on the respondents' background, familiarity with the training methods, and perceptions of the effectiveness of each method. The next chapter discusses the conclusions and recommendations based upon the data obtained from the survey.

## V. Conclusions and Recommendations

This chapter presents the conclusions and recommendations of this study based upon the analysis of the data presented in chapter IV. First, the respondent's familiarity with the training methods is discussed. Then the most effective and ineffective training methods are reviewed. Each human skill is discussed and some practical implications and recommendations are presented.

### Familiarity

Familiarity with each of the training methods is important to support the effectiveness ratings. The more familiar an individual is with a training method the more likely the individual has experience with that specific training method.

According to the higher familiarity percentages, only two of the training methods fall below 75 percent. Interactive video disk has a familiarity of 65 percent and wilderness experiences has a familiarity of 36 percent. Familiarity with interactive video disk may be low because it is a relatively new instructional technology. Familiarity with wilderness experiences may be low because this training method receives limited use in a civilian environment.



### Most Effective Training Methods

The mentoring training method was rated as the most effective method for teaching six of the eleven human skills in both sections of the survey. The mentoring training method is learning from someone who excels in a particular subject or skill and takes an interest in guiding and instructing a less experienced, usually younger person. These six skills are: emphasizing performance, enthusiasm, foresight, inspiring subordinates, and introspection. The simulation exercise training method was rated as the most effective method in both sections of the survey for teaching the communicating a shared understanding skill and the planning and organizing skill. The simulation exercise training method is a representation of a real-life situation, usually a situation requiring appropriate actions and reactions or a situation requiring the demonstration of technical expertise. Eighty five percent of the respondents were familiar with the mentoring and simulation exercise training method.

The mentoring training method and behavior modeling training method tied as the most effective methods for teaching the acting consistently skill and the providing praise and recognition skill. The behavior modeling training method is a teaching-learning method based on several widely accepted principles of adult learning: modeling or imitation, behavioral rehearsal or practice, and

reinforcement or reward. The mentoring training method and the simulation exercise training method tied as the most effective method for teaching the setting goals skill. The training methods were tied because they were ranked as most effective in one section of the survey and as second most effective in the other section.

#### Most Ineffective Training Methods

Clearly, the most ineffective training method was correspondence course. The correspondence course training method was ranked last for all training methods in both sections of the survey. A correspondence course does not allow for inter-activity or one-on-one instruction. Therefore it is logical that it would not be a good training method for teaching human skills.

The second most ineffective training method was computer based training. Computer based training ranked second to last on all but the setting goals and planning and organizing skills. The survey respondents may have perceived computer based training as an ineffective training method because human interface is reduced through the use of the computer. Both the computer based training method and correspondence course training method lack the human element that may be required to teach human skills.

### Most Effective Training Method for Each Human Skill

Each of the eleven human skills is reviewed below. This review includes the definition of the skill and its most effective training method.

Acting Consistently. The acting consistently skill is defined in the survey as the extent to which subordinates feel a manager is consistent in response, actions, and policies. The most effective training method for teaching the acting consistently skill is either the behavior modeling method or the mentoring method. There is no significant difference between these two training methods. Teaching managers to be consistent should be taught by allowing the manager to practice the behavior and providing reinforcement for correct behavior. The behavior modeling method and mentoring method allow the manager to practice acting consistently and allow for providing feedback to the manager. The next most effective method for teaching this skill is the simulation exercise method.

Communicating a Shared Understanding. The communicating a shared understanding skill is defined in the survey as the extent to which a manager ensures each member of the work unit shares the same concept of project taskings, goals, and performance expectations. The most effective training method for teaching the communicating a shared understanding skill is either the simulation exercise method or the mentoring method. The simulation exercise

training method would represent a real-life situation in which the learner can demonstrate communicating. The next most effective method for teaching this skill is the behavior modeling method.

Emphasizing Performance. The emphasizing performance skill is defined in the survey as the extent to which a manager can emphasize the importance of subordinates' performance and encourage subordinates to make a maximum effort. The most effective training method for teaching the emphasizing performance skill is either the mentoring method or the behavior modeling method. The mentoring training method allows the manager to learn from someone who excels in emphasizing performance. The next most effective method for teaching this skill is the simulation exercise method.

Enthusiasm. The enthusiasm skill is defined in the survey as the extent to which a manager can demonstrate interest or excitement about their job. The most effective training method for teaching the enthusiasm skill is either the mentoring method or the behavior modeling method. There is no significant difference between these two training methods.

Foresight. The foresight skill is defined in the survey as the extent to which a manager can look to new opportunities for the work unit to exploit, propose new activities to undertake, and offer innovative ideas for strengthening the work unit. The most effective training

method for teaching the foresight skill is the mentoring method. The next most effective method for teaching this skill is the simulation exercise method or the on-the-job-training method.

Inspiring Subordinates. The inspiring subordinates skill is defined in the survey as the extent to which a manager can stimulate enthusiasm among subordinates for the work of a group, and may say things to build their confidence in the group's ability to successfully attain its objectives. The most effective training method for the teaching the inspiring subordinates skill is either the mentoring method or the behavior modeling method. There is no significant difference between these two training methods.

Introspection. The introspection skill is defined in the survey as the extent to which a manager understands his job, is sensitive to his impact on the organization, and is aware of his own strengths and weaknesses. The most effective training method for teaching the introspection skill is the mentoring method. The next most effective method for teaching this skill is the simulation exercise method.

Performance Communication. The performance communication skill is defined in the survey as the extent to which a manager communicates information about the quality of a subordinate's work or how well they are doing.

The most effective training method for teaching the performance communication skill is either the mentoring method, the behavior modeling method, or the simulation exercise method. There is no significant difference between these three training methods.

Planning and Organizing. The planning and organizing skill is defined in the survey as the extent to which a manager plans in advance how to improve efficiency and productivity, schedule work, coordinate work unit activities, accomplish task objectives and strategies, and cope with potential problems. The most effective training method for teaching the planning and organizing skill is the simulation exercise method. The next most effective method for teaching this skill is the mentoring method or the on-the-job-training method. There is no significant difference between these two training methods.

Providing Praise and Recognition. The providing praise and recognition skill is defined in the survey as the extent to which a manager provides appropriate praise and recognition to subordinates with effective performance, and shows appreciation for special efforts and contributions made by subordinates. The most effective training method for teaching the providing praise and recognition skill is either the behavior modeling method or the mentoring method. There is no significant difference between these two

training methods. The next most effective method for teaching this skill is the simulation exercise method.

Setting Goals. The setting goals skill is defined in the survey as the extent to which a manager, either alone or jointly with a subordinate, sets specific, challenging, but realistic, performances goals for each important aspect of the subordinate's job. The most effective training method for teaching the setting goals skill is either the simulation exercise method or the mentoring method. There is no significant difference between these two training methods. The next most effective method for teaching this skill is the on-the-job-training method.

#### Practical Implications

The high effectiveness rating of the mentoring training methods suggests that training is not only required for supply officers (protoges) but, also for the Chiefs of Supply (mentors). Using the mentoring training method in the Air Force may present more challenges than its implementation in a more stable civilian company. In the Air Force, supply officers rarely have one boss for more than a year. The Chief of Supply or the supply officer is either moved to a different job or receives an assignment. The mentoring training method may be demanding on the Chief of Supply's time. The Chief of Supply must first have the time to learn to be a mentor and second must have time to be that mentor. Chiefs of Supply have a demanding job and some

may believe it is unrealistic to ask them to be mentors. On the other hand, providing Chiefs of Supply with the list of needed skills and the knowledge that for many skills the mentor training method is the most effective method may motivate them to sharpen their skills on their own.

Most importantly, the mentoring teaching method assumes that the mentor excels in each one of the human skills. While many Chiefs of Supply may excel in a few of the skills, it is unlikely that they will excel in all the skills required. Instead of relying on the mentoring training method alone, the second most effective training method, behavior modeling or simulation exercise, should also be incorporated into the training.

A specific written plan should be developed to implement the training for the eleven human skills in this study. This plan should be a map that can be tailored for each supply officer and address when and how this training will be accomplished. This training should occur between the four to ten year point of a supply officer's career.

This plan and the training could be developed by the Air Force Logistics Management Center. Because this training is not technical in nature, it is unlikely the Air Training Command would develop this training.

#### Recommendations for Future Studies

Additional research is needed to validate the skills list and the most effective training methods. Are these



really the most effective training methods? The Delphi technique could be used to validate the most effective training methods. This would involve providing the respondents with the training methods matched to the specific human skills and asking them to validate the results.

The skills list should also be revalidated with supply officers. The list of skills requiring training should be sent back out to supply officers to revalidate if these are the skills in which they actually need training. This should be accomplished with the same population as the earlier study, first lieutenants through majors and chiefs of supply.

### Conclusion

This chapter presented the most effective and ineffective training methods for each of the eleven human skills. The match between the appropriate training method and skill has now been made. The next step is for this training to be developed and delivered to supply officers.

Appendix A: Matching Development Needs  
to Training Methods Survey



DEPARTMENT OF THE AIR FORCE  
AIR FORCE LOGISTICS MANAGEMENT CENTER  
GUNTER AIR FORCE BASE, AL 36114-6693

Dear Management Development and Training Professional,

You have been identified as a management development and training expert who is involved with the Department of Defense. Because of your professional background, we need your assistance in identifying the best training methods for developing specific human skills.

A previous Air Force Institute of Technology (AFIT) study identified eleven human skills requiring development for a specific managerial position of interest. Based on this earlier work, we are now trying to identify the most effective training methods for each of these skills. Your participation in determining the most effective training method is crucial. Please take a few minutes to complete the attached survey to assist us with this important task.

All your responses will be treated confidentially. Individual identification is not required. No individual or organization will be identified when using this material unless you give specific written permission. If you are willing to be interviewed by phone or if you wish to receive a summary of this study, you may include your name, address, and phone number in the space indicated on the last section of the survey.

A pre-addressed envelope is enclosed for your convenience. Please return your responses within two weeks of receipt. If you have any questions concerning this study please contact Captain Kevin Illsley at AFIT/LSG, AUTOVON 785-8989, Commercial (513) 255-8989, or FAX AUTOVON 785-8458.

Thank you,

A handwritten signature in black ink, reading "Tim O. Peterson", is written over a horizontal line.

TIM O. PETERSON, Lt Col, USAF  
Director of Training and Knowledge Systems

- 2 Atchs  
1. Survey (Control #LK890867)  
2. Return Envelope

## MATCHING DEVELOPMENT NEEDS TO TRAINING METHODS

### GENERAL INSTRUCTIONS

The purpose of this survey is to obtain data concerning your expert opinion on matching a specific human skill to a training method. Eleven human skills are identified in this survey, along with eleven common training methods. The equal number of skills and training methods is a coincidence and not meant to imply anything (i.e. there is not a one to one match). The training methods identified in this survey are broadly defined. For example: role play, case studies, and experiential learning are considered to be training strategies or techniques. The training methods are defined below.

### DEFINITIONS

**BEHAVIOR MODELING** - A teaching-learning method based on several widely accepted principles of adult learning: modeling or imitation, behavioral rehearsal or practice, and reinforcement or reward.

**CLASSROOM LECTURE** - A well-prepared one-way presentation given before a group in a formal environment for instructional purposes.

**COMPUTER BASED TRAINING** - The delivery of instructional material through computer media. In this method, the computer substitutes for the instructor.

**CORRESPONDENCE COURSE** - Paper-based instructional method in which materials are sent to learners at their work site. The material is completed by the learner without an instructor and returned to the sender for grading and feedback.

**INTERACTIVE VIDEO DISK** - This method is similar to computer based training, but includes audio and video images.

**ON-THE-JOB EXPERIENCES** - Activities conducted at the work site to help the learner develop job-related competencies while engaging in productive work at the same time.

**MENTORING** - Learning from someone who excels in a particular subject or skill and takes an interest in guiding and instructing a less experienced, usually younger person.

**SIMULATION EXERCISE** - A representation of a real-life situation- usually a situation requiring appropriate actions and reactions or a situation requiring the demonstration of technical expertise.

**SEMINAR/WORKSHOP** - A directed discussion involving several individuals with a facilitator, who also serves as a resource.

**VIDEO TAPE** - Delivery of instructional materials through the use of a recording of audio and visual images.

**WILDERNESS EXPERIENCES** - An outdoor lab usually requiring the learners to participate in a set of physical challenges.

## Section 1

### INSTRUCTIONS

This part contains a list of the training methods defined on the previous page. Place a check in front of each training method that you are familiar with its use. To be familiar with a training method you should have had at least one experience using the method.

- |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> BEHAVIOR MODELING<br><input type="checkbox"/> CLASSROOM LECTURE<br><input type="checkbox"/> COMPUTER BASED TRAINING<br><input type="checkbox"/> CORRESPONDENCE COURSE<br><input type="checkbox"/> INTERACTIVE VIDEO DISK<br><input type="checkbox"/> ON-THE-JOB EXPERIENCES | <input type="checkbox"/> MENTORING<br><input type="checkbox"/> SIMULATION EXERCISE<br><input type="checkbox"/> SEMINAR/WORKSHOP<br><input type="checkbox"/> VIDEO TAPE<br><input type="checkbox"/> WILDERNESS EXPERIENCES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### INSTRUCTIONS

This part contains a set of human skills followed by a list of the potential training methods. Use the scale below to RATE HOW EFFECTIVE YOU BELIEVE THE TRAINING METHOD IS IN TEACHING THE HUMAN SKILL. The word effective is used to imply that the training method will produce direct improvements in performance on the job, even though it may not be the cheapest. Rate each method even if you do not have experience with that method. Enter the number in the space provided after each question. Use only the integers 1-6, do not use fractions or decimals (2½ or 2.5 is not allowed). NOTE: In the example below, the incorrect entry after Video Tape has been corrected (a choice must be made between 3 or 4).

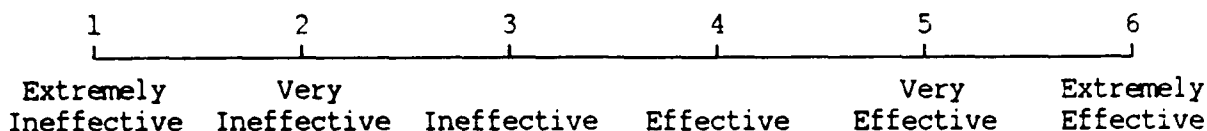
1	2	3	4	5	6
Extremely Ineffective	Very Ineffective	Ineffective	Effective	Very Effective	Extremely Effective

#### EXAMPLE:

**MANAGING STRESS** is the extent to which a manager identifies sources of major stress, develops effective time management techniques, and develops effective coping mechanisms.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                                  |                                 |
|----------------------------------|---------------------------------|
| a. BEHAVIOR MODELING _____       | g. MENTORING _____              |
| b. CLASSROOM LECTURE _____       | h. SIMULATION EXERCISE _____    |
| c. COMPUTER BASED TRAINING _____ | i. SEMINAR/WORKSHOP _____       |
| d. CORRESPONDENCE COURSE _____   | j. VIDEO TAPE _____             |
| e. INTERACTIVE VIDEO DISK _____  | k. WILDERNESS EXPERIENCES _____ |
| f. ON-THE-JOB EXPERIENCES _____  |                                 |



1. **ACTING CONSISTENTLY** is the extent to which subordinates feel a manager is consistent in responses, actions, and policies.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

2. **INSPIRING SUBORDINATES** is the extent to which a manager can stimulate enthusiasm among subordinates for the work of a group, and say things to build their confidence in the group's ability to successfully attain its objectives.

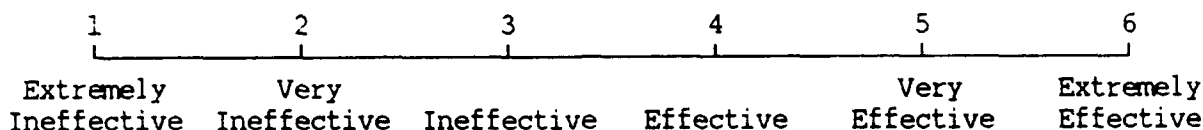
Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

3. **EMPHASIZING PERFORMANCE** is the extent to which a manager can emphasize the importance of subordinates performance and encourage subordinates to make a maximum effort.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |



4. **PERFORMANCE COMMUNICATION** is the extent to which a manager communicates information about the quality of a subordinate's work or how well he is doing.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

5. **PLANNING AND ORGANIZING** is the extent to which a manager plans in advance how to improve efficiency and productivity, schedule work, coordinate work unit activities, accomplish task objectives and strategies, and cope with potential problems.

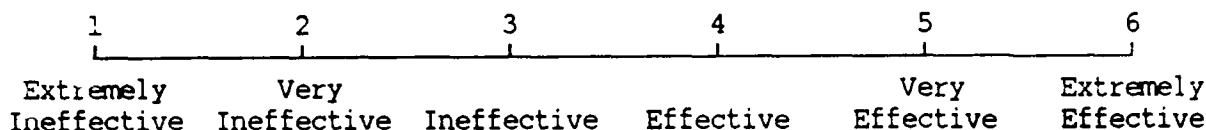
Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

6. **PROVIDING PRAISE AND RECOGNITION** is the extent to which a manager provides appropriate praise and recognition to subordinates with effective performance, and shows appreciation for special efforts and contributions made by subordinates.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |



7. **COMMUNICATING A SHARED UNDERSTANDING** is the extent to which a manager ensures each member of the work unit shares the same concept of project taskings, goals, and performance expectations.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

8. **FORESIGHT** is the extent to which a manager can look to new opportunities for the work unit to exploit, propose new activities to undertake, and offer innovative ideas for strengthening the work unit.

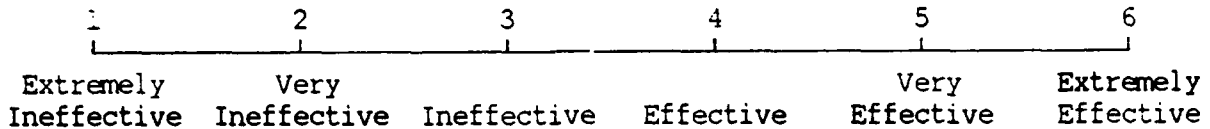
Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

9. **ENTHUSIASM** is the extent to which a manager can demonstrate interest or excitement about her job.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |



10. **INTROSPECTION** is the extent to which a manager understands his job, is sensitive to his impact on the organization, and is aware of his own strengths and weaknesses.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |

11. **SETTING GOALS** is the extent to which a manager, either alone or jointly with a subordinate, sets specific, challenging, but realistic, performance goals for each important aspect of the subordinate's job.

Rate each of the following in terms of its effectiveness in teaching this skill:

- |                            |       |                           |       |
|----------------------------|-------|---------------------------|-------|
| a. BEHAVIOR MODELING       | _____ | g. MENTORING              | _____ |
| b. CLASSROOM LECTURE       | _____ | h. SIMULATION EXERCISE    | _____ |
| c. COMPUTER BASED TRAINING | _____ | i. SEMINAR/WORKSHOP       | _____ |
| d. CORRESPONDENCE COURSE   | _____ | j. VIDEO TAPE             | _____ |
| e. INTERACTIVE VIDEO DISK  | _____ | k. WILDERNESS EXPERIENCES | _____ |
| f. ON-THE-JOB EXPERIENCES  | _____ |                           |       |



## Section 2

INSTRUCTIONS: This section contains questions which provide for a ranking of the top and bottom three training methods for each skill. Use the following training methods in selecting your responses. Enter the number (1-11) in the space provided after each choice. The training methods are defined on page 1.

### TRAINING METHODS

- |                            |                            |
|----------------------------|----------------------------|
| 1. Behavior Modeling       | 7. Mentoring               |
| 2. Classroom Lecture       | 8. Simulation Exercises    |
| 3. Computer Based Training | 9. Seminar/Workshop        |
| 4. Correspondence Course   | 10. Video Tape             |
| 5. Interactive Video Disk  | 11. Wilderness Experiences |
| 6. On-the-Job Experiences  |                            |

1. Rank order the top and bottom three training methods for teaching **ACTING CONSISTENTLY**:

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

2. Rank order the top and bottom three training methods for teaching **INSPIRING SUBORDINATES**:

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

### TRAINING METHODS

- |                            |                            |
|----------------------------|----------------------------|
| 1. Behavior Modeling       | 7. Mentoring               |
| 2. Classroom Lecture       | 8. Simulation Exercises    |
| 3. Computer Based Training | 9. Seminar/Workshop        |
| 4. Correspondence Course   | 10. Video Tape             |
| 5. Interactive Video Disk  | 11. Wilderness Experiences |
| 6. On-the-Job Experiences  |                            |

3. Rank order the top and bottom three training methods for teaching **EMPHASIZING PERFORMANCE:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

4. Rank order the top and bottom three training methods for teaching **PERFORMANCE COMMUNICATION:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

5. Rank order the top and bottom three training methods for teaching **PLANNING AND ORGANIZING:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

### TRAINING METHODS

- |                            |                            |
|----------------------------|----------------------------|
| 1. Behavior Modeling       | 7. Mentoring               |
| 2. Classroom Lecture       | 8. Simulation Exercises    |
| 3. Computer Based Training | 9. Seminar/Workshop        |
| 4. Correspondence Course   | 10. Video Tape             |
| 5. Interactive Video Disk  | 11. Wilderness Experiences |
| 6. On-the-Job Experiences  |                            |

6. Rank order the top and bottom three training methods for teaching  
**PROVIDING PRAISE AND RECOGNITION:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

7. Rank order the top and bottom three training methods for teaching  
**COMMUNICATING A SHARED UNDERSTANDING:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

8. Rank order the top and bottom three training methods for teaching  
**FORESIGHT:**

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

### TRAINING METHODS

- |                            |                            |
|----------------------------|----------------------------|
| 1. Behavior Modeling       | 7. Mentoring               |
| 2. Classroom Lecture       | 8. Simulation Exercises    |
| 3. Computer Based Training | 9. Seminar/Workshop        |
| 4. Correspondence Course   | 10. Video Tape             |
| 5. Interactive Video Disk  | 11. Wilderness Experiences |
| 6. On-the-Job Experiences  |                            |

9. Rank order the top and bottom three training methods for teaching **ENTHUSIASM**:

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

10. Rank order the top and bottom three training methods for teaching **INTROSPECTION**:

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

11. Rank order the top and bottom three training methods for teaching **SETTING GOALS**:

Most effective (first choice)	_____
Next most effective (second choice)	_____
Next most effective (third choice)	_____
Next least effective (ninth choice)	_____
Next least effective (tenth choice)	_____
Least effective (last choice)	_____

Section 3

INSTRUCTIONS: This section contains questions relating to background information. Please circle the correct response or write your answer in the space provided.

1. Which one of the following best describes your current position?

1. Military
2. Civilian (Federal Government Employee)
3. Civilian (Not employed by the Federal Government)
4. Other (please specify) \_\_\_\_\_

2. Which organization do you currently work for?

1. Army
2. Navy
3. Marines
4. Air Force
5. Other Department of Defense Agency
6. Not affiliated with the Department of Defense

3. Do you consider your current job to be extensively involved in training?

1. Yes
2. No

4. How many years and months of experience as a trainer do you have?

\_\_\_\_\_ Years \_\_\_\_\_ Months

5. What percent of your normal workweek are you involved in training or education activities? (0% to 100%)

\_\_\_\_\_ %

6. What is your highest educational level?

1. High school
2. Some college work
3. Associate's Degree
4. Bachelor's Degree
5. Some graduate work
6. Master's Degree
7. Some work beyond Master's Degree
8. Doctoral Degree
9. Post Doctoral Degree

7. What field is your degree in?

1. I do not have a Degree
  2. Management
  3. Organizational Psychology
  4. Instructional Technology
  5. Instructional Design
  6. Education
  7. Other (please specify)
- 

8. Have you been a member of any of the following management/training professional organizations? (circle as many as appropriate)

1. No, I am not a member of any professional organizations
  2. American Management Association (AMA)
  3. American Society for Training and Development (ASTD)
  4. National Society for Performance and Instruction (NSPI)
  5. Society for Applied Learning Technology (SALT)
  6. Other (please specify)
- 

9. How extensively have you developed your training skills through professional development courses or workshops? (circle your position on the scale below)

1	2	3	4	5	6
<hr/>					
None	Little	Some	Moderate	Broad	Vast

#### Section 4

INSTRUCTIONS: Write your responses to the questions in the space provided.

1. Are there any other training techniques such as exercises, case studies or video tapes that you consider useful in teaching human skills? If so, please identify the technique.
2. Are you willing to be interviewed by phone after this data has been compiled? If so please write your name and work phone below.
3. If you are interested in receiving a summary of the results of this research please write your name and complete mailing address below.

Appendix B: Demographic Data

1. Which one of the following best describes your current position?	Frequency	Percent
Military	26	17.1
Civilian (Federal Government Employee)	49	32.2
Civilian (Not employed by the Federal Govt)	63	41.4
Other	14	9.2
	<hr/>	<hr/>
TOTAL	152	100.0
2. Which organization do you currently work for?	Frequency	Percent
Army	21	13.8
Navy	24	15.8
Marines	1	0.7
Air Force	27	17.8
Other Department of Defense Agency	8	5.3
Not affiliated with the DOD	71	46.7
3. Do you consider your current job to be extensively involved in training?	Frequency	Percent
Yes	139	91.4
No	13	8.6
4. How many years and months of experience as a trainer do you have?	Frequency	Percent
Less than 5 years	17	11.2
5 years, but less than 10	28	18.4
10 years, but less than 15	39	25.6
15 years, but less than 20	23	15.1
20 years, but less than 25	30	19.7
25 years, but less than 30	11	7.2
More than 30 years	4	2.6



5. What percent of your work week are you involved in training or education activities? Frequency Percent

Less than 10 percent	2	1.3
10 percent, but less than 20 percent	4	2.6
20 percent, but less than 30 percent	7	4.6
30 percent, but less than 40 percent	1	0.7
40 percent, but less than 50 percent	3	2.0
50 percent, but less than 60 percent	10	6.5
60 percent, but less than 70 percent	5	3.3
70 percent, but less than 80 percent	11	7.2
80 percent, but less than 90 percent	24	15.3
90 percent, but less than 100 percent	21	13.8
100 percent	64	42.1

6. What is your highest educational level? Frequency Percent

High school	0	0.0
Some college work	7	4.6
Associate's Degree	1	0.7
Bachelor's Degree	12	7.9
Some graduate work	19	11.8
Master's Degree	40	26.3
Some work beyond Master's Degree	40	26.3
Doctoral Degree	31	20.4
Post Doctoral Degree	3	2.0

7. What field is your degree in? Frequency Percent

I do not have a Degree	6	3.9
Management	22	14.5
Organizational Psychology	2	1.3
Instructional Technology	8	5.3
Instructional Design	5	3.3
Education	39	25.7
Other	50	32.9
More than one Degree	20	13.2

8. Have you been a member of any of the following management/training professional organizations?

	Frequency	Percent
No, I am not a member of any professional organizations	4	2.6
American Management Association (AMA)	19	12.5
American Society for Training and Development (ASTD)	116	76.3
National Society for Performance and Instruction (NSPI)	62	40.8
Society for Applied Learning Technology (SALT)	15	9.9
Other	38	25.0

9. How extensively have you developed your training skills through professional development courses or workshops?

	Frequency	Percent
None	4	2.6
Little	8	5.3
Some	29	19.1
Moderate	43	28.3
Broad	50	32.9
Vast	18	11.8

Appendix C: Section 1 Results Sorted by Mean

Effectiveness Rating (Likert Scale 1-6)  
Possible Score from 1 to 6

SKILL	TRAINING METHOD	MEAN
Providing Praise & Recognition	Mentoring	5.22
Inspiring Subordinates	Mentoring	5.22
Emphasizing Performance	Mentoring	5.17
Acting Consistently	Mentoring	5.14
Setting Goals	Mentoring	5.13
Acting Consistently	Behavior Modeling	5.13
Inspiring Subordinates	Behavior Modeling	5.13
Providing Praise & Recognition	Behavior Modeling	5.13
Enthusiasm	Mentoring	5.09
Foresight	Mentoring	5.07
Emphasizing Performance	Behavior Modeling	5.07
Enthusiasm	Behavior Modeling	5.05
Planning & Organizing	Simulation Exercise	5.04
Introspection	Mentoring	5.03
Performance Communication	Mentoring	5.03
Comm. a Shared Understanding	Simulation Exercise	5.01
Performance Communication	Behavior Modeling	5.00
Providing Praise & Recognition	Simulation Exercise	5.00
Setting Goals	Simulation Exercise	4.98
Planning & Organizing	Mentoring	4.96
Comm. a Shared Understanding	Mentoring	4.95
Performance Communication	Simulation Exercise	4.93
Inspiring Subordinates	Simulation Exercise	4.93
Acting Consistently	Simulation Exercise	4.92
Emphasizing Performance	Simulation Exercise	4.89
Setting Goals	On-the-Job Training	4.81
Foresight	Simulation Exercise	4.80
Comm. a Shared Understanding	Behavior Modeling	4.78
Enthusiasm	On-the-Job Training	4.77
Emphasizing Performance	On-the-Job Training	4.77
Setting Goals	Behavior Modeling	4.76
Planning & Organizing	On-the-Job Training	4.76
Inspiring Subordinates	On-the-Job Training	4.75
Performance Communication	On-the-Job Training	4.74
Providing Praise & Recognition	On-the-Job Training	4.72
Acting Consistently	On-the-Job Training	4.71
Foresight	On-the-Job Training	4.71
Introspection	Simulation Exercise	4.70
Introspection	On-the-Job Training	4.67
Comm. a Shared Understanding	On-the-Job Training	4.66

SKILL	TRAINING METHOD	MEAN
Enthusiasm	Simulation Exercise	4.64
Planning & Organizing	Behavior Modeling	4.55
Foresight	Behavior Modeling	4.45
Planning & Organizing	Seminar/Workshop	4.41
Setting Goals	Seminar/Workshop	4.39
Introspection	Behavior Modeling	4.37
Foresight	Seminar/Workshop	4.34
Comm. a Shared Understanding	Seminar/Workshop	4.34
Introspection	Seminar/Workshop	4.29
Providing Praise & Recognition	Seminar/Workshop	4.26
Performance Communication	Seminar/Workshop	4.20
Enthusiasm	Seminar/Workshop	4.11
Emphasizing Performance	Seminar/Workshop	4.11
Inspiring Subordinates	Seminar/Workshop	4.09
Inspiring Subordinates	Wilderness Experiences	4.05
Acting Consistently	Seminar/Workshop	4.02
Emphasizing Performance	Wilderness Experiences	3.93
Enthusiasm	Wilderness Experiences	3.91
Planning & Organizing	Interactive Video Disc	3.90
Comm. a Shared Understanding	Wilderness Experiences	3.90
Setting Goals	Wilderness Experiences	3.84
Introspection	Wilderness Experiences	3.78
Acting Consistently	Interactive Video Disc	3.76
Providing Praise & Recognition	Wilderness Experiences	3.70
Foresight	Wilderness Experiences	3.69
Planning & Organizing	Computer Based Training	3.66
Planning & Organizing	Classroom Lecture	3.61
Planning & Organizing	Wilderness Experiences	3.59
Performance Communication	Wilderness Experiences	3.55
Setting Goals	Interactive Video Disc	3.53
Emphasizing Performance	Interactive Video Disc	3.51
Providing Praise & Recognition	Interactive Video Disc	3.51
Performance Communication	Interactive Video Disc	3.49
Setting Goals	Classroom Lecture	3.39
Inspiring Subordinates	Interactive Video Disc	3.39
Planning & Organizing	Video Tape	3.36
Acting Consistently	Wilderness Experiences	3.32
Comm. a Shared Understanding	Interactive Video Disc	3.31
Acting Consistently	Video Tape	3.27
Performance Communication	Video Tape	3.27
Introspection	Interactive Video Disc	3.25
Inspiring Subordinates	Video Tape	3.24
Emphasizing Performance	Video Tape	3.24
Foresight	Interactive Video Disc	3.23
Setting Goals	Computer Based Training	3.22
Providing Praise & Recognition	Video Tape	3.19

SKILL	TRAINING METHOD	MEAN
Providing Praise & Recognition	Classroom Lecture	3.14
Comm. a Shared Understanding	Classroom Lecture	3.12
Emphasizing Performance	Classroom Lecture	3.12
Performance Communication	Classroom Lecture	3.11
Foresight	Classroom Lecture	3.10
Comm. a Shared Understanding	Video Tape	3.09
Setting Goals	Video Tape	3.01
Introspection	Video Tape	2.99
Inspiring Subordinates	Classroom Lecture	2.97
Enthusiasm	Interactive Video Disc	2.95
Foresight	Video Tape	2.95
Introspection	Classroom Lecture	2.93
Acting Consistently	Classroom Lecture	2.91
Enthusiasm	Classroom Lecture	2.90
Enthusiasm	Video Tape	2.89
Planning & Organizing	Correspondence Course	2.88
Foresight	Computer Based Training	2.88
Providing Praise & Recognition	Computer Based Training	2.85
Acting Consistently	Computer Based Training	2.85
Emphasizing Performance	Computer Based Training	2.83
Introspection	Computer Based Training	2.79
Performance Communication	Computer Based Training	2.77
Comm. a Shared Understanding	Computer Based Training	2.77
Setting Goals	Correspondence Course	2.54
Inspiring Subordinates	Computer Based Training	2.51
Enthusiasm	Computer Based Training	2.37
Introspection	Correspondence Course	2.27
Comm. a Shared Understanding	Correspondence Course	2.27
Foresight	Correspondence Course	2.27
Providing Praise & Recognition	Correspondence Course	2.26
Acting Consistently	Correspondence Course	2.20
Emphasizing Performance	Correspondence Course	2.19
Performance Communication	Correspondence Course	2.18
Inspiring Subordinates	Correspondence Course	2.02
Enthusiasm	Correspondence Course	1.97

# Appendix D: Section 1 Results Sorted by Skill

Effectiveness Rating (Likert Scale 1-6)  
Possible Score from 1 to 6

SKILL	TRAINING METHOD	MEAN
Acting Consistently	Mentoring	5.14
Acting Consistently	Behavior Modeling	5.13
Acting Consistently	Simulation Exercise	4.92
Acting Consistently	On-the-Job Training	4.71
Acting Consistently	Seminar/Workshop	4.02
Acting Consistently	Interactive Video Disc	3.76
Acting Consistently	Wilderness Experiences	3.32
Acting Consistently	Video Tape	3.27
Acting Consistently	Classroom Lecture	2.91
Acting Consistently	Computer Based Training	2.85
Acting Consistently	Correspondence Course	2.20
Comm. a Shared Understanding	Simulation Exercise	5.01
Comm. a Shared Understanding	Mentoring	4.95
Comm. a Shared Understanding	Behavior Modeling	4.78
Comm. a Shared Understanding	On-the-Job Training	4.66
Comm. a Shared Understanding	Seminar/Workshop	4.34
Comm. a Shared Understanding	Wilderness Experiences	3.90
Comm. a Shared Understanding	Interactive Video Disc	3.31
Comm. a Shared Understanding	Classroom Lecture	3.12
Comm. a Shared Understanding	Video Tape	3.09
Comm. a Shared Understanding	Computer Based Training	2.77
Comm. a Shared Understanding	Correspondence Course	2.27
Emphasizing Performance	Mentoring	5.17
Emphasizing Performance	Behavior Modeling	5.07
Emphasizing Performance	Simulation Exercise	4.89
Emphasizing Performance	On-the-Job Training	4.77
Emphasizing Performance	Seminar/Workshop	4.11
Emphasizing Performance	Wilderness Experiences	3.93
Emphasizing Performance	Interactive Video Disc	3.51
Emphasizing Performance	Video Tape	3.24
Emphasizing Performance	Classroom Lecture	3.12
Emphasizing Performance	Computer Based Training	2.33
Emphasizing Performance	Correspondence Course	2.19
Enthusiasm	Mentoring	5.09
Enthusiasm	Behavior Modeling	5.05
Enthusiasm	On-the-Job Training	4.77
Enthusiasm	Simulation Exercise	4.64

SKILL	TRAINING METHOD	MEAN
Enthusiasm	Seminar/Workshop	4.11
Enthusiasm	Wilderness Experiences	3.91
Enthusiasm	Interactive Video Disc	2.95
Enthusiasm	Classroom Lecture	2.90
Enthusiasm	Video Tape	2.89
Enthusiasm	Computer Based Training	2.37
Enthusiasm	Correspondence Course	1.97
Foresight	Mentoring	5.07
Foresight	Simulation Exercise	4.80
Foresight	On-the-Job Training	4.71
Foresight	Behavior Modeling	4.45
Foresight	Seminar/Workshop	4.34
Foresight	Wilderness Experiences	3.69
Foresight	Interactive Video Disc	3.23
Foresight	Classroom Lecture	3.10
Foresight	Video Tape	2.95
Foresight	Computer Based Training	2.88
Foresight	Correspondence Course	2.27
Inspiring Subordinates	Mentoring	5.22
Inspiring Subordinates	Behavior Modeling	5.13
Inspiring Subordinates	Simulation Exercise	4.93
Inspiring Subordinates	On-the-Job Training	4.75
Inspiring Subordinates	Seminar/Workshop	4.09
Inspiring Subordinates	Wilderness Experiences	4.05
Inspiring Subordinates	Interactive Video Disc	3.39
Inspiring Subordinates	Video Tape	3.24
Inspiring Subordinates	Classroom Lecture	2.97
Inspiring Subordinates	Computer Based Training	2.51
Inspiring Subordinates	Correspondence Course	2.02
Introspection	Mentoring	5.03
Introspection	Simulation Exercise	4.70
Introspection	On-the-Job Training	4.67
Introspection	Behavior Modeling	4.37
Introspection	Seminar/Workshop	4.29
Introspection	Wilderness Experiences	3.78
Introspection	Interactive Video Disc	3.25
Introspection	Video Tape	2.99
Introspection	Classroom Lecture	2.93
Introspection	Computer Based Training	2.79
Introspection	Correspondence Course	2.27
Performance Communication	Mentoring	5.03
Performance Communication	Behavior Modeling	5.00

SKILL	TRAINING METHOD	MEAN
Performance Communication	Simulation Exercise	4.93
Performance Communication	On-the-Job Training	4.74
Performance Communication	Seminar/Workshop	4.20
Performance Communication	Wilderness Experiences	3.55
Performance Communication	Interactive Video Disc	
3.49Performance Communication	Video Tape	
3.27		
Performance Communication	Classroom Lecture	3.11
Performance Communication	Computer Based Training	2.77
Performance Communication	Correspondence Course	2.18
Planning & Organizing	Simulation Exercise	5.04
Planning & Organizing	Mentoring	4.96
Planning & Organizing	On-the-Job Training	4.76
Planning & Organizing	Behavior Modeling	4.55
Planning & Organizing	Seminar/Workshop	4.41
Planning & Organizing	Interactive Video Disc	3.90
Planning & Organizing	Computer Based Training	3.66
Planning & Organizing	Classroom Lecture	3.61
Planning & Organizing	Wilderness Experiences	3.51
Planning & Organizing	Video Tape	3.36
Planning & Organizing	Correspondence Course	2.88
Providing Praise & Recognition	Mentoring	5.22
Providing Praise & Recognition	Behavior Modeling	5.13
Providing Praise & Recognition	Simulation Exercise	5.00
Providing Praise & Recognition	On-the-Job Training	4.72
Providing Praise & Recognition	Seminar/Workshop	4.26
Providing Praise & Recognition	Wilderness Experiences	3.70
Providing Praise & Recognition	Interactive Video Disc	3.51
Providing Praise & Recognition	Video Tape	3.19
Providing Praise & Recognition	Classroom Lecture	3.14
Providing Praise & Recognition	Computer Based Training	2.85
Providing Praise & Recognition	Correspondence Course	2.26
Setting Goals	Mentoring	5.13
Setting Goals	Simulation Exercise	4.98
Setting Goals	On-the-Job Training	4.81
Setting Goals	Behavior Modeling	4.76
Setting Goals	Seminar/Workshop	4.29
Setting Goals	Wilderness Experiences	3.84
Setting Goals	Interactive Video Disc	3.53
Setting Goals	Classroom Lecture	3.29
Setting Goals	Computer Based Training	3.22
Setting Goals	Video Tape	3.01
Setting Goals	Correspondence Course	2.54



# Appendix E: Section 1 Results Sorted by Training Method

Effectiveness Rating (Likert Scale 1-6)  
Possible Score from 1 to 6

SKILL	TRAINING METHOD	MEAN
Inspiring Subordinates	Behavior Modeling	5.13
Acting Consistently	Behavior Modeling	5.13
Providing Praise & Recognition	Behavior Modeling	5.13
Emphasizing Performance	Behavior Modeling	5.07
Enthusiasm	Behavior Modeling	5.05
Performance Communication	Behavior Modeling	5.00
Comm. a Shared Understanding	Behavior Modeling	4.78
Setting Goals	Behavior Modeling	4.76
Planning & Organizing	Behavior Modeling	4.55
Foresight	Behavior Modeling	4.45
Introspection	Behavior Modeling	4.37
Planning & Organizing	Classroom Lecture	3.61
Setting Goals	Classroom Lecture	3.39
Providing Praise & Recognition	Classroom Lecture	3.14
Comm. a Shared Understanding	Classroom Lecture	3.12
Emphasizing Performance	Classroom Lecture	3.12
Performance Communication	Classroom Lecture	3.11
Foresight	Classroom Lecture	3.10
Inspiring Subordinates	Classroom Lecture	2.97
Introspection	Classroom Lecture	2.93
Acting Consistently	Classroom Lecture	2.91
Enthusiasm	Classroom Lecture	2.90
Planning & Organizing	Computer Based Training	3.66
Setting Goals	Computer Based Training	3.22
Foresight	Computer Based Training	2.88
Providing Praise & Recognition	Computer Based Training	2.85
Acting Consistently	Computer Based Training	2.85
Emphasizing Performance	Computer Based Training	2.83
Introspection	Computer Based Training	2.79
Comm. a Shared Understanding	Computer Based Training	2.77
Performance Communication	Computer Based Training	2.77
Inspiring Subordinates	Computer Based Training	2.51
Enthusiasm	Computer Based Training	2.37
Planning & Organizing	Correspondence Course	2.88
Setting Goals	Correspondence Course	2.54
Comm. a Shared Understanding	Correspondence Course	2.27
Foresight	Correspondence Course	2.27

SKILL	TRAINING METHOD	MEAN
Introspection	Correspondence Course	2.27
Providing Praise & Recognition	Correspondence Course	2.26
Acting Consistently	Correspondence Course	2.20
Emphasizing Performance	Correspondence Course	2.19
Performance Communication	Correspondence Course	2.18
Inspiring Subordinates	Correspondence Course	2.02
Enthusiasm	Correspondence Course	1.97
Planning & Organizing	Interactive Video Disc	3.90
Acting Consistently	Interactive Video Disc	3.76
Setting Goals	Interactive Video Disc	3.53
Emphasizing Performance	Interactive Video Disc	3.51
Providing Praise & Recognition	Interactive Video Disc	3.51
Performance Communication	Interactive Video Disc	3.49
Inspiring Subordinates	Interactive Video Disc	3.39
Comm. a Shared Understanding	Interactive Video Disc	3.31
Introspection	Interactive Video Disc	3.25
Foresight	Interactive Video Disc	3.23
Enthusiasm	Interactive Video Disc	2.95
Providing Praise & Recognition	Mentoring	5.22
Inspiring Subordinates	Mentoring	5.22
Emphasizing Performance	Mentoring	5.17
Acting Consistently	Mentoring	5.14
Setting Goals	Mentoring	5.13
Enthusiasm	Mentoring	5.09
Foresight	Mentoring	5.07
Introspection	Mentoring	5.03
Performance Communication	Mentoring	5.03
Planning & Organizing	Mentoring	4.96
Comm. a Shared Understanding	Mentoring	4.95
Setting Goals	On-the-Job Training	4.81
Emphasizing Performance	On-the-Job Training	4.77
Enthusiasm	On-the-Job Training	4.77
Planning & Organizing	On-the-Job Training	4.76
Inspiring Subordinates	On-the-Job Training	4.75
Performance Communication	On-the-Job Training	4.74
Providing Praise & Recognition	On-the-Job Training	4.72
Acting Consistently	On-the-Job Training	4.71
Foresight	On-the-Job Training	4.71
Introspection	On-the-Job Training	4.67
Comm. a Shared Understanding	On-the-Job Training	4.66
Planning & Organizing	Seminar/Workshop	4.41
Setting Goals	Seminar/Workshop	4.39

SKILL	TRAINING METHOD	MEAN
Foresight	Seminar/Workshop	4.34
Comm. a Shared Understanding	Seminar/Workshop	4.34
Introspection	Seminar/Workshop	4.29
Providing Praise & Recognition	Seminar/Workshop	4.26
Performance Communication	Seminar/Workshop	4.20
Enthusiasm	Seminar/Workshop	4.11
Emphasizing Performance	Seminar/Workshop	4.11
Inspiring Subordinates	Seminar/Workshop	4.09
Acting Consistently	Seminar/Workshop	4.02
Planning & Organizing	Simulation Exercise	5.04
Comm. a Shared Understanding	Simulation Exercise	5.01
Providing Praise & Recognition	Simulation Exercise	5.00
Setting Goals	Simulation Exercise	4.98
Inspiring Subordinates	Simulation Exercise	4.93
Performance Communication	Simulation Exercise	4.93
Acting Consistently	Simulation Exercise	4.92
Emphasizing Performance	Simulation Exercise	4.89
Foresight	Simulation Exercise	4.80
Introspection	Simulation Exercise	4.70
Enthusiasm	Simulation Exercise	4.64
Planning & Organizing	Video Tape	3.36
Acting Consistently	Video Tape	3.27
Performance Communication	Video Tape	3.27
Inspiring Subordinates	Video Tape	3.24
Emphasizing Performance	Video Tape	3.24
Providing Praise & Recognition	Video Tape	3.19
Comm. a Shared Understanding	Video Tape	3.09
Setting Goals	Video Tape	3.01
Introspection	Video Tape	2.99
Foresight	Video Tape	2.95
Enthusiasm	Video Tape	2.89
Inspiring Subordinates	Wilderness Experiences	4.05
Emphasizing Performance	Wilderness Experiences	3.93
Enthusiasm	Wilderness Experiences	3.91
Comm. a Shared Understanding	Wilderness Experiences	3.90
Setting Goals	Wilderness Experiences	3.84
Introspection	Wilderness Experiences	3.78
Providing Praise & Recognition	Wilderness Experiences	3.70
Foresight	Wilderness Experiences	3.69
Planning & Organizing	Wilderness Experiences	3.59
Performance Communication	Wilderness Experiences	3.55
Acting Consistently	Wilderness Experiences	3.32

Appendix F: Section 2 Results Sorted by Mean

(Mean Score from Top and Bottom Three Rankings)  
Possible Score From -3 to 3

SKILL	TRAINING METHOD	MEAN
Foresight	Mentoring	1.61
Acting Consistently	Behavior Modeling	1.57
Acting Consistently	Mentoring	1.51
Introspection	Mentoring	1.49
Enthusiasm	Mentoring	1.49
Inspiring Subordinates	Mentoring	1.45
Providing Praise & Recognition	Behavior Modeling	1.44
Emphasizing Performance	Mentoring	1.43
Enthusiasm	Behavior Modeling	1.42
Comm. a Shared Understanding	Simulation Exercise	1.41
Planning & Organizing	Simulation Exercise	1.37
Providing Praise & Recognition	Mentoring	1.37
Performance Communication	Mentoring	1.35
Inspiring Subordinates	Behavior Modeling	1.34
Setting Goals	Simulation Exercise	1.30
Performance Communication	Behavior Modeling	1.28
Performance Communication	Simulation Exercise	1.24
Emphasizing Performance	Behavior Modeling	1.24
Setting Goals	Mentoring	1.24
Providing Praise & Recognition	Simulation Exercise	1.24
Comm. a Shared Understanding	Mentoring	1.23
Foresight	Simulation Exercise	1.18
Acting Consistently	Simulation Exercise	1.15
Emphasizing Performance	Simulation Exercise	1.14
Introspection	Simulation Exercise	1.10
Comm. a Shared Understanding	Behavior Modeling	1.03
Planning & Organizing	Mentoring	1.02
Inspiring Subordinates	Simulation Exercise	0.95
Foresight	On-the-Job Training	0.93
Emphasizing Performance	On-the-Job Training	0.91
Enthusiasm	Simulation Exercise	0.90
Enthusiasm	On-the-Job Training	0.89
Inspiring Subordinates	On-the-Job Training	0.86
Comm. a Shared Understanding	On-the-Job Training	0.84
Setting Goals	On-the-Job Training	0.82
Acting Consistently	On-the-Job Training	0.80
Planning & Organizing	On-the-Job Training	0.80
Setting Goals	Behavior Modeling	0.78
Providing Praise & Recognition	On-the-Job Training	0.76
Introspection	On-the-Job Training	0.76

SKILL	TRAINING METHOD	MEAN
Foresight	Behavior Modeling	0.74
Introspection	Behavior Modeling	0.74
Performance Communication	On-the-Job Training	0.72
Setting Goals	Seminar/Workshop	0.65
Planning & Organizing	Seminar/Workshop	0.61
Planning & Organizing	Behavior Modeling	0.60
Comm. a Shared Understanding	Seminar/Workshop	0.57
Introspection	Seminar/Workshop	0.51
Foresight	Seminar/Workshop	0.44
Performance Communication	Seminar/Workshop	0.41
Enthusiasm	Seminar/Workshop	0.34
Providing Praise & Recognition	Seminar/Workshop	0.33
Emphasizing Performance	Seminar/Workshop	0.25
Inspiring Subordinates	Seminar/Workshop	0.20
Acting Consistently	Seminar/Workshop	0.14
Inspiring Subordinates	Wilderness Experiences	0.08
Emphasizing Performance	Wilderness Experiences	-0.01
Enthusiasm	Wilderness Experiences	-0.02
Introspection	Wilderness Experiences	-0.03
Acting Consistently	Interactive Video Disk	-0.10
Comm. a Shared Understanding	Wilderness Experiences	-0.10
Inspiring Subordinates	Interactive Video Disk	-0.13
Foresight	Wilderness Experiences	-0.16
Introspection	Interactive Video Disk	-0.18
Planning & Organizing	Interactive Video Disk	-0.20
Foresight	Interactive Video Disk	-0.20
Setting Goals	Wilderness Experiences	-0.22
Performance Communication	Interactive Video Disk	-0.22
Providing Praise & Recognition	Interactive Video Disk	-0.26
Comm. a Shared Understanding	Interactive Video Disk	-0.26
Enthusiasm	Interactive Video Disk	-0.28
Providing Praise & Recognition	Wilderness Experiences	-0.30
Emphasizing Performance	Interactive Video Disk	-0.30
Setting Goals	Interactive Video Disk	-0.33
Performance Communication	Wilderness Experiences	-0.38
Planning & Organizing	Wilderness Experiences	-0.45
Setting Goals	Classroom Lecture	-0.45
Planning & Organizing	Classroom Lecture	-0.46
Planning & Organizing	Computer Based Training	-0.51
Performance Communication	Classroom Lecture	-0.53
Enthusiasm	Video Tape	-0.58
Acting Consistently	Video Tape	-0.59
Inspiring Subordinates	Video Tape	-0.60
Foresight	Classroom Lecture	-0.61
Comm. a Shared Understanding	Classroom Lecture	-0.61
Emphasizing Performance	Classroom Lecture	-0.62

SKILL	TRAINING METHOD	MEAN
Enthusiasm	Classroom Lecture	-0.63
Inspiring Subordinates	Classroom Lecture	-0.67
Performance Communication	Video Tape	-0.68
Acting Consistently	Wilderness Experiences	-0.70
Introspection	Classroom Lecture	-0.72
Providing Praise & Recognition	Video Tape	-0.75
Introspection	Video Tape	-0.76
Providing Praise & Recognition	Classroom Lecture	-0.77
Emphasizing Performance	Video Tape	-0.78
Acting Consistently	Classroom Lecture	-0.78
Acting Consistently	Computer Based Training	-0.85
Introspection	Computer Based Training	-0.85
Comm. a Shared Understanding	Video Tape	-0.86
Setting Goals	Computer Based Training	-0.87
Foresight	Computer Based Training	-0.91
Foresight	Video Tape	-0.91
Setting Goals	Video Tape	-0.97
Planning & Organizing	Video Tape	-0.98
Performance Communication	Computer Based Training	-1.01
Providing Praise & Recognition	Computer Based Training	-1.01
Emphasizing Performance	Computer Based Training	-1.03
Comm. a Shared Understanding	Computer Based Training	-1.11
Inspiring Subordinates	Computer Based Training	-1.22
Enthusiasm	Computer Based Training	-1.30
Planning & Organizing	Correspondence Course	-1.80
Setting Goals	Correspondence Course	-1.95
Introspection	Correspondence Course	-2.03
Providing Praise & Recognition	Correspondence Course	-2.05
Foresight	Correspondence Course	-2.12
Comm. a Shared Understanding	Correspondence Course	-2.13
Acting Consistently	Correspondence Course	-2.15
Inspiring Subordinates	Correspondence Course	-2.17
Performance Communication	Correspondence Course	-2.20
Emphasizing Performance	Correspondence Course	-2.23
Enthusiasm	Correspondence Course	-2.24

# Appendix G: Section 2 Results Sorted by Skill

(Mean Score from Top and Bottom Three Rankings)  
Possible Score From -3 to 3

SKILL	TRAINING METHOD	MEAN
Acting Consistently	Behavior Modeling	1.57
Acting Consistently	Mentoring	1.51
Acting Consistently	Simulation Exercise	1.15
Acting Consistently	On-the-Job Training	0.80
Acting Consistently	Seminar/Workshop	0.14
Acting Consistently	Interactive Video Disk	-0.10
Acting Consistently	Video Tape	-0.59
Acting Consistently	Wilderness Experiences	-0.70
Acting Consistently	Classroom Lecture	-0.78
Acting Consistently	Computer Based Training	-0.85
Acting Consistently	Correspondence Course	-2.15
Comm. a Shared Understanding	Simulation Exercise	1.41
Comm. a Shared Understanding	Mentoring	1.23
Comm. a Shared Understanding	Behavior Modeling	1.03
Comm. a Shared Understanding	On-the-Job Training	0.84
Comm. a Shared Understanding	Seminar/Workshop	0.57
Comm. a Shared Understanding	Wilderness Experiences	-0.10
Comm. a Shared Understanding	Interactive Video Disk	-0.26
Comm. a Shared Understanding	Classroom Lecture	-0.61
Comm. a Shared Understanding	Video Tape	-0.86
Comm. a Shared Understanding	Computer Based Training	-1.11
Comm. a Shared Understanding	Correspondence Course	-2.13
Emphasizing Performance	Mentoring	1.43
Emphasizing Performance	Behavior Modeling	1.24
Emphasizing Performance	Simulation Exercise	1.14
Emphasizing Performance	On-the-Job Training	0.91
Emphasizing Performance	Seminar/Workshop	0.25
Emphasizing Performance	Wilderness Experiences	-0.01
Emphasizing Performance	Interactive Video Disk	-0.30
Emphasizing Performance	Classroom Lecture	-0.62
Emphasizing Performance	Video Tape	-0.78
Emphasizing Performance	Computer Based Training	-1.03
Emphasizing Performance	Correspondence Course	-2.23
Enthusiasm	Mentoring	1.49
Enthusiasm	Behavior Modeling	1.42
Enthusiasm	Simulation Exercise	0.90
Enthusiasm	On-the-Job Training	0.89

SKILL	TRAINING METHOD	MEAN
Enthusiasm	Seminar/Workshop	0.34
Enthusiasm	Wilderness Experiences	-0.02
Enthusiasm	Interactive Video Disk	-0.28
Enthusiasm	Video Tape	-0.58
Enthusiasm	Classroom Lecture	-0.63
Enthusiasm	Computer Based Training	-1.30
Enthusiasm	Correspondence Course	-2.24
Foresight	Mentoring	1.61
Foresight	Simulation Exercise	1.18
Foresight	On-the-Job Training	0.93
Foresight	Behavior Modeling	0.74
Foresight	Seminar/Workshop	0.44
Foresight	Wilderness Experiences	-0.16
Foresight	Interactive Video Disk	-0.20
Foresight	Classroom Lecture	-0.61
Foresight	Video Tape	-0.91
Foresight	Computer Based Training	-0.91
Foresight	Correspondence Course	-2.12
Inspiring Subordinates	Mentoring	1.45
Inspiring Subordinates	Behavior Modeling	1.34
Inspiring Subordinates	Simulation Exercise	0.95
Inspiring Subordinates	On-the-Job Training	0.86
Inspiring Subordinates	Seminar/Workshop	0.20
Inspiring Subordinates	Wilderness Experiences	0.08
Inspiring Subordinates	Interactive Video Disk	-0.13
Inspiring Subordinates	Video Tape	-0.60
Inspiring Subordinates	Classroom Lecture	-0.67
Inspiring Subordinates	Computer Based Training	-1.23
Inspiring Subordinates	Correspondence Course	-2.17
Introspection	Mentoring	1.49
Introspection	Simulation Exercise	1.10
Introspection	On-the-Job Training	0.76
Introspection	Behavior Modeling	0.74
Introspection	Seminar/Workshop	0.51
Introspection	Wilderness Experiences	-0.05
Introspection	Interactive Video Disk	-0.18
Introspection	Classroom Lecture	-0.72
Introspection	Video Tape	-0.76
Introspection	Computer Based Training	-0.85
Introspection	Correspondence Course	-2.03
Performance Communication	Mentoring	1.35
Performance Communication	Behavior Modeling	1.28



SKILL	TRAINING METHOD	MEAN
Performance Communication	Simulation Exercise	1.24
Performance Communication	On-the-Job Training	0.72
Performance Communication	Seminar/Workshop	0.41
Performance Communication	Interactive Video Disk	-0.22
Performance Communication	Wilderness Experiences	-0.38
Performance Communication	Classroom Lecture	-0.53
Performance Communication	Video Tape	-0.68
Performance Communication	Computer Based Training	-1.01
Performance Communication	Correspondence Course	-2.20
Planning & Organizing	Simulation Exercise	1.37
Planning & Organizing	Mentoring	1.02
Planning & Organizing	On-the-Job Training	0.80
Planning & Organizing	Seminar/Workshop	0.61
Planning & Organizing	Behavior Modeling	0.60
Planning & Organizing	Interactive Video Disk	-0.20
Planning & Organizing	Wilderness Experiences	-0.45
Planning & Organizing	Classroom Lecture	-0.46
Planning & Organizing	Computer Based Training	-0.51
Planning & Organizing	Video Tape	-0.98
Planning & Organizing	Correspondence Course	-1.80
Providing Praise & Recognition	Behavior Modeling	1.44
Providing Praise & Recognition	Mentoring	1.37
Providing Praise & Recognition	Simulation Exercise	1.24
Providing Praise & Recognition	On-the-Job Training	0.76
Providing Praise & Recognition	Seminar/Workshop	0.33
Providing Praise & Recognition	Interactive Video Disk	-0.26
Providing Praise & Recognition	Wilderness Experiences	-0.30
Providing Praise & Recognition	Video Tape	-0.75
Providing Praise & Recognition	Classroom Lecture	-0.77
Providing Praise & Recognition	Computer Based Training	-1.01
Providing Praise & Recognition	Correspondence Course	-2.05
Setting Goals	Simulation Exercise	1.30
Setting Goals	Mentoring	1.24
Setting Goals	On-the-Job Training	0.82
Setting Goals	Behavior Modeling	0.78
Setting Goals	Seminar/Workshop	0.65
Setting Goals	Wilderness Experiences	-0.22
Setting Goals	Interactive Video Disk	-0.33
Setting Goals	Classroom Lecture	-0.45
Setting Goals	Computer Based Training	-0.87
Setting Goals	Video Tape	-0.97
Setting Goals	Correspondence Course	-1.95

# Appendix H: Section 2 Results Sorted by Training Method

(Mean Score from Top and Bottom Three Rankings)  
Possible Score From -3 to 3

SKILL	TRAINING METHOD	MEAN
Acting Consistently	Behavior Modeling	1.57
Providing Praise & Recognition	Behavior Modeling	1.44
Enthusiasm	Behavior Modeling	1.42
Inspiring Subordinates	Behavior Modeling	1.34
Performance Communication	Behavior Modeling	1.28
Emphasizing Performance	Behavior Modeling	1.24
Comm. a Shared Understanding	Behavior Modeling	1.03
Setting Goals	Behavior Modeling	0.78
Foresight	Behavior Modeling	0.74
Introspection	Behavior Modeling	0.74
Planning & Organizing	Behavior Modeling	0.60
Setting Goals	Classroom Lecture	-0.45
Planning & Organizing	Classroom Lecture	-0.46
Performance Communication	Classroom Lecture	-0.53
Foresight	Classroom Lecture	-0.61
Comm. a Shared Understanding	Classroom Lecture	-0.61
Emphasizing Performance	Classroom Lecture	-0.62
Enthusiasm	Classroom Lecture	-0.63
Inspiring Subordinates	Classroom Lecture	-0.67
Introspection	Classroom Lecture	-0.72
Providing Praise & Recognition	Classroom Lecture	-0.77
Acting Consistently	Classroom Lecture	-0.78
Planning & Organizing	Computer Based Training	-0.51
Introspection	Computer Based Training	-0.85
Acting Consistently	Computer Based Training	-0.85
Setting Goals	Computer Based Training	-0.87
Foresight	Computer Based Training	-0.91
Performance Communication	Computer Based Training	-1.01
Providing Praise & Recognition	Computer Based Training	-1.01
Emphasizing Performance	Computer Based Training	-1.03
Comm. a Shared Understanding	Computer Based Training	-1.11
Inspiring Subordinates	Computer Based Training	-1.23
Enthusiasm	Computer Based Training	-1.30
Planning & Organizing	Correspondence Course	-1.30
Setting Goals	Correspondence Course	-1.95
Introspection	Correspondence Course	-2.03
Providing Praise & Recognition	Correspondence Course	-2.05

SKILL	TRAINING METHOD	MEAN
Foresight	Correspondence Course	-2.12
Comm. a Shared Understanding	Correspondence Course	-2.13
Acting Consistently	Correspondence Course	-2.15
Inspiring Subordinates	Correspondence Course	-2.17
Performance Communication	Correspondence Course	-2.20
Emphasizing Performance	Correspondence Course	-2.23
Enthusiasm	Correspondence Course	-2.24
Acting Consistently	Interactive Video Disk	-0.10
Inspiring Subordinates	Interactive Video Disk	-0.13
Introspection	Interactive Video Disk	-0.18
Planning & Organizing	Interactive Video Disk	-0.20
Foresight	Interactive Video Disk	-0.20
Performance Communication	Interactive Video Disk	-0.22
Providing Praise & Recognition	Interactive Video Disk	-0.26
Comm. a Shared Understanding	Interactive Video Disk	-0.26
Enthusiasm	Interactive Video Disk	-0.28
Emphasizing Performance	Interactive Video Disk	-0.30
Setting Goals	Interactive Video Disk	-0.33
Foresight	Mentoring	1.61
Acting Consistently	Mentoring	1.51
Enthusiasm	Mentoring	1.49
Introspection	Mentoring	1.49
Inspiring Subordinates	Mentoring	1.45
Emphasizing Performance	Mentoring	1.43
Providing Praise & Recognition	Mentoring	1.37
Performance Communication	Mentoring	1.35
Setting Goals	Mentoring	1.24
Comm. a Shared Understanding	Mentoring	1.23
Planning & Organizing	Mentoring	1.02
Foresight	On-the-Job Training	0.93
Emphasizing Performance	On-the-Job Training	0.91
Enthusiasm	On-the-Job Training	0.89
Inspiring Subordinates	On-the-Job Training	0.86
Comm. a Shared Understanding	On-the-Job Training	0.84
Setting Goals	On-the-Job Training	0.82
Planning & Organizing	On-the-Job Training	0.80
Acting Consistently	On-the-Job Training	0.80
Providing Praise & Recognition	On-the-Job Training	0.76
Introspection	On-the-Job Training	0.76
Performance Communication	On-the-Job Training	0.72

SKILL	TRAINING METHOD	MEAN
Setting Goals	Seminar/Workshop	0.65
Planning & Organizing	Seminar/Workshop	0.61
Comm. a Shared Understanding	Seminar/Workshop	0.57
Introspection	Seminar/Workshop	0.51
Foresight	Seminar/Workshop	0.44
Performance Communication	Seminar/Workshop	0.41
Enthusiasm	Seminar/Workshop	0.34
Providing Praise & Recognition	Seminar/Workshop	0.33
Emphasizing Performance	Seminar/Workshop	0.25
Inspiring Subordinates	Seminar/Workshop	0.20
Acting Consistently	Seminar/Workshop	0.14
Comm. a Shared Understanding	Simulation Exercise	1.41
Planning & Organizing	Simulation Exercise	1.37
Setting Goals	Simulation Exercise	1.30
Performance Communication	Simulation Exercise	1.24
Providing Praise & Recognition	Simulation Exercise	1.24
Foresight	Simulation Exercise	1.13
Acting Consistently	Simulation Exercise	1.15
Emphasizing Performance	Simulation Exercise	1.14
Introspection	Simulation Exercise	1.10
Inspiring Subordinates	Simulation Exercise	0.95
Enthusiasm	Simulation Exercise	0.90
Enthusiasm	Video Tape	-0.58
Acting Consistently	Video Tape	-0.59
Inspiring Subordinates	Video Tape	-0.60
Performance Communication	Video Tape	-0.68
Providing Praise & Recognition	Video Tape	-0.75
Introspection	Video Tape	-0.76
Emphasizing Performance	Video Tape	-0.78
Comm. a Shared Understanding	Video Tape	-0.86
Foresight	Video Tape	-0.91
Setting Goals	Video Tape	-0.97
Planning & Organizing	Video Tape	-0.98
Inspiring Subordinates	Wilderness Experiences	0.08
Emphasizing Performance	Wilderness Experiences	-0.01
Enthusiasm	Wilderness Experiences	-0.02
Introspection	Wilderness Experiences	-0.05
Comm. a Shared Understanding	Wilderness Experiences	-0.10
Foresight	Wilderness Experiences	-0.16
Setting Goals	Wilderness Experiences	-0.22
Providing Praise & Recognition	Wilderness Experiences	-0.30
Performance Communication	Wilderness Experiences	-0.38
Planning & Organizing	Wilderness Experiences	-0.45
Acting Consistently	Wilderness Experiences	-0.70

Appendix I: Analysis of Variance Procedure  
for Section 1 by Skill

Analysis of Variance for Acting Consistently

Class Level Information

Class      Levels      Values

TNGMETHOD      3      B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	4.7894737	2.3947368	2.95	0.0531
Error	453	367.2368421	0.8106774		
Corrected Total	455	372.0263158			

R-Square	C.V.	Root MSE	EFF Mean
0.012874	17.77366	0.9004	5.0658

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	4.7894737	2.3947368	2.95	0.0531

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05    df= 453    MSE= 0.810677

Critical Value of T= 1.97

Least Significant Difference= 0.203

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	5.1447	152	M = Mentoring
A			
A	5.1316	152	B = Behavior Modeling
B	4.9211	152	S = Simulation Exercise

# Analysis of Variance for Communicating a Shared Understanding

## Class Level Information

Class Levels Values

TNGMETHOD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	4.0833333	2.0416667	2.02	0.1342
Error	453	458.4078947	1.0119380		
Corrected Total	455	462.4912281			

R-Square	C.V.	Root MSE	EFF Mean
0.008829	20.47829	1.0060	4.9123

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	4.0833333	2.0416667	2.02	0.1342

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.011938  
Critical Value of T= 1.97  
Least Significant Difference= 0.2268

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	5.0066	152	S = Simulation Exercise
A	4.9474	152	M = Mentoring
A	4.7829	152	B = Behavior Modeling

# Analysis of Variance for Emphasizing Performance

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	6.2149123	3.1074561	3.29	0.0382
Error	453	427.9934211	0.9447978		
Corrected Total	455	434.2083333			

R-Square	C.V.	Root MSE	EFF Mean
0.014313	19.27948	0.9720	5.0417

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	6.2149123	3.1074561	3.29	0.0382

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 0.944798  
Critical Value of T= 1.97  
Least Significant Difference= 0.2191

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.1711	152	M = Mentoring
A			
B	5.0658	152	B = Behavior Modeling
B			
B	4.9982	152	S = Simulation Exercise

# Analysis of Variance for Enthusiasm

## Class Level Information

Class Levels Values

TNGMETHOD 3 B M O

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	9.3991228	4.6995614	3.99	0.0191
Error	453	533.2302632	1.1771087		
Corrected Total	455	542.6293860			

R-Square	C.V.	Root MSE	EFF Mean
0.017321	21.82336	1.0849	4.9715

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	9.3991228	4.6995614	3.99	0.0191

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.177109  
Critical Value of T= 1.97  
Least Significant Difference= 0.2446

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	5.0921	152	M = Mentoring
A			
A	5.0526	152	B = Behavior Modeling
B	4.7697	152	O = On-the-Job-Training



# Analysis of Variance for Foresight

## Class Level Information

Class      Levels      Values

TNGMETHD          3      M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	10.451754	5.225877	5.00	0.0071
Error	453	473.282895	1.044775		
Corrected Total	455	483.734649			

R-Square	C.V.	Root MSE	EFF Mean
0.021606	21.04275	1.0221	4.8575

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	10.451754	5.225877	5.00	0.0071

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05    df= 453    MSE= 1.044775  
Critical Value of T= 1.97  
Least Significant Difference= 0.2304

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.0658	152	M = Mentoring
B	4.7961	152	S = Simulation Exercise
B	4.7105	152	O = On-the-Job-Training

# Analysis of Variance for Inspiring Subordinates

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	6.7236842	3.3618421	3.87	0.0215
Error	453	393.4078947	0.8684501		
Corrected Total	455	400.1315789			

R-Square	C.V.	Root MSE	EFF Mean
0.016804	18.30101	0.9319	5.0921

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	6.7236842	3.3618421	3.87	0.0215

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 0.86845  
Critical Value of T= 1.97  
Least Significant Difference= 0.2101

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.2171	152	M = Mentoring
A			
B	5.1316	152	B = Behavior Modeling
B			
B	4.9276	152	S = Simulation Exercise

# Analysis of Variance for Introspection

## Class Level Information

Class Levels Values

TNGMETHD 3 M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	12.171053	6.085526	5.53	0.0042
Error	453	498.065789	1.099483		
Corrected Total	455	510.236842			

R-Square	C.V.	Root MSE	EFF Mean
0.023854	21.83308	1.0486	4.8026

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	12.171053	6.085526	5.53	0.0042

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.099483

Critical Value of T= 1.97

Least Significant Difference= 0.2364

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.0329	152	M = Mentoring
B	4.7039	152	S = Simulation Exercise
B	4.6711	152	O = On-the-Job-Training

# Analysis of Variance for Performance Communication

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.7938596	0.3969298	0.40	0.6673
Error	453	444.0986842	0.9803503		
Corrected Total	455	444.8925439			

R-Square	C.V.	Root MSE	EFF Mean
0.001784	19.86351	0.9901	4.9846

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	0.7938596	0.3969298	0.40	0.6673

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 0.98035

Critical Value of T= 1.97

Least Significant Difference= 0.2232

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.0263	152	M = Mentoring
A			
A	5.0000	152	B = Behavior Modeling
A			
A	4.9276	152	S = Simulation Exercise

# Analysis of Variance for Planning and Organizing

## Class Level Information

Class Levels Values

TNGMETHD 3 M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	6.1578947	3.0789474	2.70	0.0684
Error	453	517.0000000	1.1412804		
Corrected Total	455	523.1578947			

R-Square	C.V.	Root MSE	EFF Mean
0.011771	21.70892	1.0683	4.9211

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	6.1578947	3.0789474	2.70	0.0684

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.14128  
Critical Value of T= 1.97  
Least Significant Difference= 0.2408

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.0395	152	S = Simulation Exercise
A			
B	4.9605	152	M = Mentoring
B			
B	4.7632	152	O = On-the-Job-Training

# Analysis of Variance for Providing Praise and Recognition

## Class Level Information

Class Levels Values

TNGMETHOD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	3.8201754	1.9100877	2.34	0.0970
Error	453	369.0197368	0.8146131		
Corrected Total	455	372.8399123			

R-Square	C.V.	Root MSE	EFF Mean
0.010246	17.64111	0.9026	5.1162

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	3.8201754	1.9100877	2.34	0.0970

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 0.814613

Critical Value of T= 1.97

Least Significant Difference= 0.2035

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	5.2237	152	M = Mentoring
A			
B	5.1250	152	B = Behavior Modeling
B			
B	5.0000	152	S = Simulation Exercise

# Analysis of Variance for Setting Goals

## Class Level Information

Class Levels Values

TNGMETHD 3 M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	7.9078947	3.9539474	4.15	0.0164
Error	453	431.7763158	0.9531486		
Corrected Total	455	439.6842105			

R-Square	C.V.	Root MSE	EFF Mean
0.017985	19.62918	0.9763	4.9737

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	7.9078947	3.9539474	4.15	0.0164

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 0.953149  
Critical Value of T= 1.97  
Least Significant Difference= 0.2201

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	5.1316	152	M = Mentoring
A			
B	4.9803	152	S = Simulation Exercise
E			
E	4.8092	152	O = On-the-Job-Training

Appendix J: Analysis of Variance Procedure  
for Section 2 by Skill

Analysis of Variance for Acting Consistently

Class Level Information

Class	Levels	Values
TNGMETHD	3	B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	15.596491	7.798246	5.22	0.0057
Error	453	676.717105	1.493857		
Corrected Total	455	692.313596			

R-Square	C.V.	Root MSE	EFF Mean
0.022528	86.67789	1.2222	1.4101

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	15.596491	7.798246	5.22	0.0057

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.493857  
Critical Value of T= 1.97  
Least Significant Difference= 0.2755

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.5724	152	B = Behavior Modeling
A			
A	1.5066	152	M = Mentoring
B	1.1513	152	S = Simulation Exercise



# Analysis of Variance for Communicating a Shared Understanding

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	10.697368	5.348684	3.48	0.0317
Error	453	696.486842	1.537499		
Corrected Total	455	707.184211			

R-Square	C.V.	Root MSE	EFF Mean
0.015127	101.3300	1.2400	1.2237

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	10.697368	5.348684	3.48	0.0317

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.537499  
Critical Value of T= 1.97  
Least Significant Difference= 0.2795

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.4079	152	S = Simulation Exercise
A			
B	1.2303	152	M = Mentoring
B			
B	1.0329	152	B = Behavior Modeling

# Analysis of Variance for Emphasizing Performance

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	6.5263158	3.2631579	1.99	0.1373
Error	453	741.2960526	1.6364151		
Corrected Total	455	747.8223684			

R-Square	C.V.	Root MSE	EFF Mean
0.008727	100.7472	1.2792	1.2697

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	6.5263158	3.2631579	1.99	0.1373

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.636415

Critical Value of T= 1.97

Least Significant Difference= 0.2884

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.4276	152	M = Mentoring
A			
B	1.2434	152	B = Behavior Modeling
B			
S	1.1382	152	S = Simulation Exercise

# Analysis of Variance for Enthusiasm

## Class Level Information

Class Levels Values

TNGMETHD 3 B M O

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	32.017544	16.008772	9.63	0.0001
Error	453	753.342105	1.663007		
Corrected Total	455	785.359649			

R-Square	C.V.	Root MSE	EFF Mean
0.040768	101.7382	1.2896	1.2675

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	32.017544	16.008772	9.63	0.0001

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.663007  
Critical Value of T= 1.97  
Least Significant Difference= 0.2907

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.4868	152	M = Mentoring
A			
A	1.4211	152	B = Behavior Modeling
B	0.8947	152	O = On-the-Job-Training

# Analysis of Variance for Foresight

## Class Level Information

Class Levels Values

TNGMETHD 3 M O S

Number of observations in data set = 456

## Analysis of Variance Procedure

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	35.083333	17.541667	10.74	0.0001
Error	453	739.861842	1.633249		
Corrected Total	455	774.945175			

R-Square	C.V.	Root MSE	EFF Mean
0.045272	103.1437	1.2780	1.2390

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	35.083333	17.541667	10.74	0.0001

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.633249  
Critical Value of T= 1.97  
Least Significant Difference= 0.2881

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.6053	152	M = Mentoring
B	1.1776	152	S = Simulation Exercise
B	0.9342	152	O = On-the-Job-Training

# Analysis of Variance for Insiring Subordinates

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	20.754386	10.377193	6.60	0.0015
Error	453	712.243421	1.572281		
Corrected Total	455	732.997807			

R-Square	C.V.	Root MSE	EFF Mean
0.028314	100.4888	1.2539	1.2478

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	20.754386	10.377193	6.60	0.0015

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.572281  
Critical Value of T= 1.97  
Least Significant Difference= 0.2827

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.4539	152	M = Mentoring
A			
A	1.3355	152	B = Behavior Modeling
B	0.9539	152	S = Simulation Exercise

# Analysis of Variance for Introspection

## Class Level Information

Class Levels Values

TNGMETHOD 3 M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	40.583333	20.291667	12.36	0.0001
Error	453	743.486842	1.641251		
Corrected Total	455	784.070175			
	R-Square	C.V.	Root MSE		EFF Mean
	0.051760	114.9976	1.2811		1.1140

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	40.583333	20.291667	12.36	0.0001

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.641251  
Critical Value of T= 1.97  
Least Significant Difference= 0.2888

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	1.4868	152	M = Mentoring
B	1.0987	152	S = Simulation Exercise
C	0.7566	152	O = On-the-Job-Training

# Analysis of Variance for Performance Communication

## Class Level Information

Class Levels Values

TNGMETHD 3 B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	0.8596491	0.4298246	0.25	0.7820
Error	453	791.3486842	1.7469066		
Corrected Total	455	792.2083333			

R-Square	C.V.	Root MSE	EFF Mean
0.001085	102.3256	1.3217	1.2917

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	0.8596491	0.4298246	0.25	0.7820

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.746907  
Critical Value of T= 1.97  
Least Significant Difference= 0.2979

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.3487	152	M = Mentoring
A			
A	1.2829	152	B = Behavior Modeling
A			
A	1.2434	152	S = Simulation Exercise

# Analysis of Variance for Planning and Organizing

## Class Level Information

Class Levels Values

TNGMETHD 3 M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	24.767544	12.383772	6.77	0.0013
Error	453	828.388158	1.828671		
Corrected Total	455	853.155702			

R-Square	C.V.	Root MSE	EFF Mean
0.029031	127.1426	1.3523	1.0636

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHD	2	24.767544	12.383772	6.77	0.0013

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05 df= 453 MSE= 1.828671

Critical Value of T= 1.97

Least Significant Difference= 0.3048

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHD
A	1.3684	152	S = Simulation Exercise
B	1.0197	152	M = Mentoring
B			
B	0.8026	152	O = On-the-Job-Training



# Analysis of Variance for Providing Praise and Recognition

## Class Level Information

Class      Levels      Values

TNGMETHOD      3      B M S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	3.2500000	1.6250000	1.05	0.3504
Error	453	700.3092105	1.5459364		
Corrected Total	455	703.5592105			

R-Square	C.V.	Root MSE	EFF Mean
0.004619	92.19037	1.2434	1.3487

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	3.2500000	1.6250000	1.05	0.3504

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05    df= 453    MSE= 1.545936  
Critical Value of T= 1.97  
Least Significant Difference= 0.2803

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	1.4408	152	B = Behavior Modeling
A			
A	1.3684	152	M = Mentoring
A			
A	1.2368	152	S = Simulation Exercise

# Analysis of Variance for Setting Goals

## Class Level Information

Class      Levels      Values

TNGMETHOD      3      M O S

Number of observations in data set = 456

Dependent Variable: EFF

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	20.609649	10.304825	5.64	0.0038
Error	453	827.756579	1.827277		
Corrected Total	455	848.366228			

R-Square	C.V.	Root MSE	EFF Mean
0.024293	120.6275	1.3518	1.1206

Source	DF	Anova SS	Mean Square	F Value	Pr > F
TNGMETHOD	2	20.609649	10.304825	5.64	0.0038

T tests (LSD) for variable: EFF

NOTE: This test controls the type I comparisonwise error rate not the experimentwise error rate.

Alpha= 0.05    df= 453    MSE= 1.827277

Critical Value of T= 1.97

Least Significant Difference= 0.3047

Means with the same letter are not significantly different.

T Grouping	Mean	N	TNGMETHOD
A	1.3026	152	S = Simulation Exercise
A			
A	1.2368	152	M = Mentoring
B	0.8224	152	O = On-the-Job-Training

# Appendix K: Correlation Analysis by Skill

## Correlation Analysis for Acting Consistently

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	AC1	AC2	AC3	AC4	AC5	AC6
ACBM	0.56016 0.0001	-0.15169 0.0621	-0.01828 0.8231	-0.13047 0.1091	-0.07674 0.3474	-0.19429 0.0165
ACCL	-0.13585 0.0952	0.60562 0.0001	0.07176 0.3797	0.29653 0.0002	-0.10176 0.2122	0.06065 0.4579
ACCB	0.09745 0.2323	-0.21043 0.0093	0.42695 0.0001	-0.19505 0.0160	0.19761 0.0147	-0.15314 0.0596
ACCC	-0.02648 0.7460	-0.00555 0.9459	-0.07916 0.3323	0.23838 0.0031	-0.10397 0.2024	0.00206 0.9799
ACIV	0.04707 0.5647	-0.07140 0.3821	0.21248 0.0086	-0.01277 0.8759	0.57667 0.0001	-0.22735 0.0048
AC0J	-0.13870 0.0883	0.03545 0.6646	-0.12459 0.1262	0.03302 0.6863	-0.19964 0.0137	0.56093 0.0001
ACME	-0.10217 0.2104	0.02225 0.7855	-0.06131 0.4531	0.08401 0.3035	-0.16709 0.0396	0.14888 0.0672
ACSE	-0.13015 0.1100	-0.13248 0.1037	-0.01312 0.8726	-0.07885 0.3342	0.07336 0.3691	-0.11376 0.1629
ACSW	-0.04611 0.5727	0.09506 0.2440	0.00125 0.9878	-0.07239 0.3754	0.03255 0.6905	-0.20873 0.0099
ACVT	-0.00100 0.9902	-0.00381 0.9629	-0.09278 0.2556	-0.06575 0.4210	0.00551 0.9463	-0.05174 0.5267
ACWE	-0.12614 0.1215	-0.16290 0.0449	-0.19214 0.0177	-0.10091 0.2161	-0.08787 0.2817	0.03195 0.6960

## KEY

AC1 & ACBM = Behavior Modeling

AC2 & ACCL = Classroom Lecture

AC3 & ACCB = Computer Based Training

AC4 & ACCC = Correspondence Course

AC5 & ACIV = Interactive Video Disk

AC6 & ACOJ = On-the-Job Training

AC7 & ACME = Mentoring

AC8 & ACSE = Simulation Exercise

AC9 & ACSW = Seminar/Workshop

AC10 & ACVT = Video Tape

AC11 & ACWE = Wilderness Experience

# Correlation Analysis for Acting Consistently (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	AC7	AC8	AC9	AC10	AC11
ACEM	-0.08933 0.2738	-0.11197 0.1696	-0.14580 0.0731	-0.17919 0.0272	-0.05483 0.5023
ACCL	0.08710 0.2860	0.00381 0.9628	0.23690 0.0033	0.11577 0.1555	-0.04354 0.5943
ACCB	-0.03417 0.6760	-0.07685 0.3467	-0.15798 0.0519	-0.12734 0.1180	-0.22961 0.0044
ACCC	-0.05032 0.5381	0.00854 0.9168	0.00305 0.9702	-0.12510 0.1246	-0.26079 0.0012
ACIV	-0.16673 0.0401	0.21773 0.0070	0.08372 0.3051	0.16881 0.0376	-0.02327 0.7760
AC0J	0.07733 0.3437	-0.18192 0.0249	-0.19777 0.0146	-0.09968 0.2218	0.00534 0.9479
ACME	0.54749 0.0001	-0.20680 0.0106	-0.20191 0.0126	-0.20268 0.0123	-0.18201 0.0248
ACSE	-0.26299 0.0011	0.46551 0.0001	0.14631 0.0721	0.02440 0.7654	0.14605 0.0726
ACSW	-0.18144 0.0253	-0.00296 0.9711	0.33564 0.0001	0.06432 0.4311	-0.10812 0.1849
ACVT	0.04321 0.5971	-0.00072 0.9930	0.06889 0.3991	0.48714 0.0001	-0.07711 0.3451
ACWE	-0.05840 0.4748	-0.05432 0.5063	-0.04839 0.5538	-0.04756 0.5606	0.60723 0.0001

## KEY

AC1 & ACEM = Behavior Modeling  
AC2 & ACCL = Classroom Lecture  
AC3 & ACCB = Computer Based Training  
AC4 & ACCC = Correspondence Course  
AC5 & ACIV = Interactive Video Disk  
AC6 & ACOJ = On-the-Job Training

AC7 & ACME = Mentoring  
AC8 & ACSE = Simulation Exercise  
AC9 & ACSW = Seminar/Workshop  
AC10 & ACVT = Video Tape  
AC11 & ACWE = Wilderness Experience

# Correlation Analysis for Inspiring Subordinates

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	IS1	IS2	IS3	IS4	IS5	IS6
ISBM	0.58698 0.0001	-0.08092 0.3217	-0.00411 0.9599	0.02085 0.7988	-0.05533 0.4984	-0.16506 0.0421
ISCL	-0.09672 0.2359	0.50515 0.0001	-0.00200 0.9805	0.10328 0.2055	-0.11596 0.1548	0.00316 0.9692
ISCB	0.01650 0.8401	-0.05140 0.5294	0.34158 0.0001	-0.05113 0.5312	0.21829 0.0069	-0.01201 0.8832
ISCC	0.02705 0.7408	0.04420 0.5887	0.02661 0.7449	0.34850 0.0001	-0.09826 0.2285	0.02321 0.7765
ISIV	-0.10176 0.2122	-0.11425 0.1610	0.07956 0.3299	-0.06986 0.3924	0.42579 0.0001	0.00178 0.9826
ISOJ	-0.13704 0.0923	-0.07320 0.3702	-0.16339 0.0443	-0.02650 0.7459	-0.20711 0.0105	0.55469 0.0001
ISME	-0.17092 0.0353	0.16967 0.0366	0.09167 0.2614	0.17581 0.0303	0.02159 0.7918	-0.00924 0.9100
ISSE	-0.13966 0.0862	-0.08015 0.3263	-0.07811 0.3388	-0.10996 0.1775	-0.14320 0.0784	-0.07695 0.3461
ISSW	-0.12041 0.1395	0.16420 0.0432	0.09912 0.2244	0.01254 0.3782	0.15292 0.0600	-0.03928 0.6309
ISVT	0.05391 0.5095	-0.06707 0.4116	0.00056 0.9946	0.04061 0.6194	0.01525 0.8521	-0.12155 0.1358
ISWE	-0.05911 0.4695	-0.19382 0.0167	-0.23368 0.0038	-0.29880 0.0002	-0.10200 0.2112	-0.05345 0.5131

## KEY

IS1 & ISBM = Behavior Modeling

IS2 & ISCL = Classroom Lecture

IS3 & ISCB = Computer Based Training

IS4 & ISCC = Correspondence Course

IS5 & ISIV = Interactive Video Disk

IS6 & ISOJ = On-the-Job Training

IS7 & ISME = Mentoring

IS8 & ISSE = Simulation Exercise

IS9 & ISSW = Seminar/Workshop

IS10 & ISVT = Video Tape

IS11 & ISWE = Wilderness Experience

# Correlation Analysis for Inspiring Subordinates (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	IS7	IS8	IS9	IS10	IS11
ISEM	-0.05091 0.5333	-0.02821 0.7301	-0.09972 0.2216	-0.16218 0.0459	-0.02113 0.7961
ISCL	0.00113 0.9890	-0.12066 0.1387	0.17257 0.0335	0.12915 0.1128	-0.15476 0.0570
ISCB	-0.05415 0.5076	0.08172 0.3169	-0.05410 0.5080	-0.08893 0.2759	-0.23807 0.0031
ISCC	0.03796 0.6424	-0.17132 0.0348	-0.11676 0.1520	-0.20574 0.0110	-0.31798 0.0001
ISIV	0.00110 0.9893	0.12281 0.1317	-0.00799 0.9222	0.18860 0.0200	-0.09667 0.2361
ISOJ	0.01245 0.8790	-0.22795 0.0047	-0.21955 0.0066	-0.08473 0.2993	-0.02053 0.8018
ISME	0.42960 0.0001	-0.30156 0.0002	-0.10600 0.1937	-0.04628 0.5712	-0.09011 0.2696
ISSE	-0.16719 0.0395	0.53567 0.0001	0.11730 0.1501	-0.13120 0.1072	-0.00981 0.9045
ISSW	-0.07007 0.3910	0.18282 0.0242	0.48007 0.0001	0.03663 0.6536	-0.08939 0.2734
ISVT	-0.03063 0.7079	-0.02789 0.7331	0.09669 0.2360	0.48822 0.0001	-0.06588 0.4200
ISWE	-0.09934 0.2233	0.05067 0.5353	-0.01516 0.8530	-0.07329 0.3695	0.69677 0.0001

## KEY

IS1 & ISEM = Behavior Modeling	IS7 & ISME = Mentoring
IS2 & ISCL = Classroom Lecture	IS8 & ISSE = Simulation Exercise
IS3 & ISCB = Computer Based Training	IS9 & ISSW = Seminar/Workshop
IS4 & ISCC = Correspondence Course	IS10 & ISVT = Video Tape
IS5 & ISIV = Interactive Video Disk	IS11 & ISWE = Wilderness Experience
IS6 & ISOJ = On-the-Job Training	

# Correlation Analysis for Communicating a Shared Understanding

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	CS1	CS2	CS3	CS4	CS5	CS6
CSBM	0.59633 0.0001	-0.12156 0.1357	0.08071 0.3229	0.05051 0.5366	0.06317 0.4394	-0.09110 0.2643
CSCL	-0.14049 0.0843	0.54253 0.0001	0.06389 0.4342	0.22065 0.0063	-0.10691 0.1899	-0.17273 0.0333
CSCE	0.04781 0.5586	-0.00562 0.9452	0.37564 0.0001	0.06248 0.4445	0.27624 0.0006	0.03899 0.6334
CSCC	-0.09114 0.2641	-0.00349 0.9660	0.02497 0.7601	0.18570 0.0220	-0.01883 0.8179	-0.13631 0.0940
CSIV	0.04810 0.5563	-0.14459 0.0755	0.14605 0.0726	0.02433 0.7814	0.44712 0.0001	0.02950 0.7574
CSOJ	-0.10016 0.2195	-0.23409 0.0037	-0.23344 0.0038	-0.16865 0.0378	-0.23224 0.0040	0.57405 0.0001
CSME	0.07605 0.3517	0.04468 0.5847	-0.02773 0.7345	0.07556 0.3548	-0.19793 0.0145	0.12694 0.1191
CSSE	-0.08516 0.2969	0.09506 0.2440	0.02767 0.7350	0.00744 0.9275	0.06756 0.4083	-0.17842 0.0279
CSSW	-0.23763 0.0032	0.25498 0.0015	0.01056 0.8973	0.00523 0.9490	0.00208 0.9798	-0.19810 0.0140
CSVV	-0.16645 0.0404	-0.04817 0.5557	-0.09494 0.2446	-0.10267 0.2082	-0.05218 0.5232	-0.06601 0.4101
CSWE	-0.02548 0.7553	-0.28304 0.0004	-0.23839 0.0031	-0.27201 0.0007	-0.10222 0.2102	-0.00014 0.9986

## KEY

CS1 & CSBM = Behavior Modeling

CS2 & CSCL = Classroom Lecture

CS3 & CSCE = Computer Based Training

CS4 & CSCE = Correspondence Course

CS5 & CSIV = Interactive Video Disk

CS6 & CSOJ = On-the-Job Training

CS7 & CSME = Mentoring

CS8 & CSSE = Simulation Exercise

CS9 & CSSW = Seminar/Workshop

CS10 & CSVV = Video Tape

CS11 & CSWE = Wilderness Experience

# Correlation Analysis for Communicating a Shared Understanding (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	CS7	CS8	CS9	CS10	CS11
CSEB	0.08038 0.3249	-0.01626 0.8424	-0.13261 0.1034	-0.11343 0.1641	0.01881 0.8181
CSEL	0.07359 0.3676	-0.18729 0.0209	0.20171 0.0127	0.07491 0.3590	-0.20752 0.0103
CSEB	0.01478 0.8566	0.10090 0.2161	-0.02764 0.7354	-0.00316 0.9692	-0.04554 0.5774
CSCC	-0.13642 0.0938	-0.03798 0.6423	-0.10156 0.2131	-0.17540 0.0307	-0.21898 0.0067
CSIV	-0.12068 0.1386	0.06888 0.3991	-0.15893 0.0505	0.04314 0.3977	0.06880 0.3995
CSOJ	0.03305 0.6861	-0.14161 0.0818	-0.23730 0.0032	-0.14690 0.0709	0.00921 0.9103
CSME	0.50771 0.0001	-0.26173 0.0011	-0.23430 0.0037	-0.16576 0.0413	-0.24637 0.0022
CSSE	-0.18048 0.0261	0.50538 0.0001	0.17957 0.0268	0.09677 0.2356	0.09205 0.2594
CSSW	-0.12957 0.1116	-0.00377 0.9632	0.59230 0.0001	0.13665 0.0932	-0.08742 0.2842
CSVV	-0.09948 0.2227	-0.07822 0.3381	0.05710 0.4847	0.47553 0.0001	-0.10241 0.2093
CSWE	-0.12317 0.1306	0.09499 0.2444	-0.03620 0.6572	-0.13804 0.0899	0.57822 0.0001

## KEY

CS1 & CSEB = Behavior Modeling  
CS2 & CSEL = Classroom Lecture  
CS3 & CSCB = Computer Based Training  
CS4 & CSCC = Correspondence Course  
CS5 & CSIV = Interactive Video Disk  
CS6 & CSOJ = On-the-Job Training

CS7 & CSME = Mentoring  
CS8 & CSSE = Simulation Exercise  
CS9 & CSSW = Seminar/Workshop  
CS10 & CSVV = Video Tape  
CS11 & CSWE = Wilderness Experience



# Correlation Analysis for Enthusiasm

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	EN1	EN2	EN3	EN4	EN5	EN6
ENBM	0.66788 0.0001	-0.07828 0.3378	0.00200 0.9805	0.01114 0.8917	0.05067 0.5353	0.01171 0.9861
ENCL	-0.07362 0.3674	0.41053 0.0001	0.04186 0.6086	0.14479 0.0751	-0.11453 0.1600	-0.11849 0.1460
ENCB	-0.19477 0.0162	-0.05524 0.4991	0.16952 0.0368	-0.09229 0.2581	0.07072 0.3866	0.06364 0.4360
ENCC	-0.04065 0.6190	-0.00763 0.9257	0.02625 0.7482	0.23921 0.0030	-0.15584 0.0552	-0.08499 0.2979
ENIV	-0.10955 0.1791	-0.08620 0.2910	0.14520 0.0743	0.06363 0.4357	0.45553 0.0001	-0.01141 0.8890
EN0J	-0.17220 0.0339	-0.21550 0.0077	-0.23851 0.0031	-0.26299 0.0011	-0.31169 0.0001	0.54946 0.0001
ENME	-0.10955 0.1791	0.05058 0.5360	0.07590 0.3527	0.07145 0.3817	-0.04501 0.5817	0.03738 0.6476
ENSE	-0.02891 0.7236	-0.02613 0.7493	-0.02672 0.7438	-0.06326 0.4387	0.06069 0.4576	-0.07254 0.3745
ENSW	-0.04477 0.5839	0.21200 0.0087	0.02033 0.8037	0.03759 0.6457	-0.06262 0.4435	-0.15804 0.0385
ENVT	0.00325 0.9683	0.03677 0.6529	0.13528 0.0966	0.08100 0.3212	0.14609 0.0723	-0.20034 0.0103
ENWE	-0.03491 0.6694	-0.12989 0.1107	-0.20351 0.0119	-0.13321 0.1018	0.00302 0.9705	-0.09854 0.2271

## KEY

EN1 & ENBM = Behavior Modeling

EN2 & ENCL = Classroom Lecture

EN3 & ENCB = Computer Based Training

EN4 & ENCC = Correspondence Course

EN5 & ENIV = Interactive Video Disk

EN6 & EN0J = On-the-Job Training

EN7 & ENME = Mentoring

EN8 & ENSE = Simulation Exercise

EN9 & ENSW = Seminar/Workshop

EN10 & ENVT = Video Tape

EN11 & ENWE = Wilderness Experience

# Correlation Analysis for Enthusiasm (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	EN7	EN8	EN9	EN10	EN11
ENBM	0.14548 0.0737	0.05049 0.5367	-0.03755 0.6460	-0.04688 0.5663	0.08571 0.2938
ENCL	-0.06921 0.3968	-0.03663 0.6541	0.08714 0.2857	-0.05545 0.4974	-0.23257 0.0039
ENCE	-0.12197 0.1344	-0.01195 0.8838	-0.08005 0.3269	-0.05204 0.5243	-0.24356 0.0025
ENCC	-0.17269 0.0334	-0.12176 0.1351	-0.02116 0.7958	-0.04861 0.5520	-0.15835 0.0514
ENIV	-0.13820 0.0805	0.01643 0.3408	-0.11033 0.1760	0.15800 0.0519	-0.07733 0.3437
ENOJ	-0.05052 0.5365	-0.26307 0.0011	-0.34534 0.0001	-0.37477 0.0001	-0.15480 0.0572
ENME	0.51839 0.0001	-0.08745 0.2840	-0.04577 0.5755	0.00323 0.9680	-0.00227 0.9778
ENSE	-0.14098 0.0832	0.47517 0.0001	0.13263 0.1033	-0.04613 0.5703	0.10501 0.1973
ENSW	-0.14673 0.0712	-0.00342 0.9667	0.44031 0.0001	0.08348 0.3066	-0.15792 0.0520
ENVT	-0.05985 0.4639	0.02884 0.7243	0.05194 0.5251	0.48127 0.0001	-0.08941 0.2733
ENWE	0.05695 0.4858	0.00746 0.9273	0.04900 0.5488	-0.01136 0.8895	0.63679 0.0001

## KEY

EN1 & ENBM = Behavior Modeling

EN2 & ENCL = Classroom Lecture

EN3 & ENCE = Computer Based Training

EN4 & ENCC = Correspondence Course

EN5 & ENIV = Interactive Video Disk

EN6 & ENOJ = On-the-Job Training

EN7 & ENME = Mentoring

EN8 & ENSE = Simulation Exercise

EN9 & ENSW = Seminar/Workshop

EN10 & ENVT = Video Tape

EN11 & ENWE = Wilderness Experience

# Correlation Analysis for Introspection

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	IN1	IN2	IN3	IN4	IN5	IN6
INBM	0.59596 0.0001	-0.13006 0.1102	-0.10257 0.2086	-0.17198 0.0341	-0.08228 0.2136	-0.00489 0.9523
INCL	-0.00577 0.9438	0.43254 0.0001	0.09226 0.2583	0.06218 0.4467	-0.12884 0.1137	-0.05463 0.5039
INCE	-0.02684 0.7427	0.06664 0.4146	0.36046 0.0001	0.12177 0.1351	0.19647 0.0142	-0.12009 0.1216
INCC	-0.12790 0.1163	0.18865 0.0199	0.13627 0.0941	0.36537 0.0001	0.06146 0.4519	-0.09606 0.2391
INIV	-0.08680 0.2876	-0.02911 0.7219	0.20747 0.0103	0.11590 0.1550	0.49210 0.0001	0.06726 0.4103
INOJ	-0.10973 0.1784	-0.21449 0.0080	-0.17833 0.0279	-0.12139 0.1363	-0.15006 0.0650	0.58440 0.0001
INME	0.08676 0.2879	-0.06136 0.4527	-0.03658 0.6546	-0.02733 0.7382	-0.05101 0.5326	0.11035 0.1759
INSE	-0.01057 0.8971	-0.06249 0.4444	-0.08378 0.3048	-0.11573 0.1556	-0.01752 0.8303	-0.14901 0.0669
INSW	-0.25015 0.0019	0.13023 0.1098	-0.03403 0.6772	0.01906 0.3157	0.08309 0.0033	0.34908 0.0001
INVT	-0.11260 0.1672	-0.12143 0.1362	-0.05820 0.4763	0.04996 0.5411	0.10952 0.2173	-0.03026 0.7110
INWE	-0.06346 0.4373	-0.12156 0.1357	-0.16010 0.0488	-0.18468 0.0227	-0.17838 0.0279	0.02391 0.7237

## KEY

IN1 & INEM = Behavior Modeling	IN7 & INME = Mentoring
IN2 & INCL = Classroom Lecture	IN8 & INSE = Simulation Exercise
IN3 & INCE = Computer Based Training	IN9 & INSW = Seminar/Workshop
IN4 & INCC = Correspondence Course	IN10 & INVT = Video Tape
IN5 & INIV = Interactive Video Disk	IN11 & INWE = Wilderness Experience
IN6 & INOJ = On-the-Job Training	

# Correlation Analysis for Introspection (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	IN7	IN8	IN9	IN10	IN11
INBM	0.21320 0.0084	0.03162 0.6990	-0.14908 0.0668	-0.12395 0.1281	-0.01448 0.8595
INCL	-0.17051 0.0357	-0.16118 0.0473	0.00424 0.9586	-0.04211 0.6065	-0.11120 0.1726
INCB	-0.06247 0.4445	-0.07648 0.3490	0.00847 0.9175	0.02404 0.7688	0.06174 0.4499
INCC	-0.18415 0.0231	-0.11608 0.1544	-0.04983 0.5421	0.01320 0.8717	-0.24699 0.0022
INIV	-0.09584 0.2402	-0.10789 0.1858	-0.09494 0.2446	0.19540 0.0158	-0.12178 0.1350
INOJ	0.11220 0.1687	-0.17224 0.0339	-0.26042 0.0012	-0.16079 0.0478	-0.03903 0.6329
INME	0.57536 0.0001	-0.11762 0.1490	-0.06787 0.4061	-0.11254 0.1674	-0.14086 0.0835
INSE	-0.25953 0.0012	0.49833 0.0001	0.04666 0.5681	-0.04674 0.5674	0.04304 0.5986
INSW	-0.11772 0.1486	0.05073 0.5348	0.53810 0.0001	0.03524 0.6665	-0.07780 0.3408
INVT	-0.06261 0.4435	-0.02594 0.7510	0.09152 0.2621	0.39798 0.0001	-0.04383 0.5919
INWE	-0.06194 0.4484	0.16649 0.0404	0.05945 0.4669	-0.06905 0.3979	0.59755 0.0001

## KEY

IN1 & INBM = Behavior Modeling

IN2 & INCL = Classroom Lecture

IN3 & INCB = Computer Based Training

IN4 & INCC = Correspondence Course

IN5 & INIV = Interactive Video Disk

IN6 & INOJ = On-the-Job Training

IN7 & INME = Mentoring

IN8 & INSE = Simulation Exercise

IN9 & INSW = Seminar/Workshop

IN10 & INVT = Video Tape

IN11 & INWE = Wilderness Experience

# Correlation Analysis for Emphasizing Performance

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	EP1	EP2	EP3	EP4	EP5	EP6
EPBM	0.47611 0.0001	-0.03333 0.6835	0.05530 0.4986	0.03882 0.6349	0.00005 0.9995	-0.20734 0.0104
EPCL	-0.02182 0.7896	0.48100 0.0001	-0.04919 0.5473	0.12362 0.1292	-0.15391 0.0583	-0.06428 0.4214
EPCE	-0.00209 0.9796	-0.05565 0.4959	0.30243 0.0002	-0.11862 0.1455	0.10014 0.2196	0.07964 0.3294
EPCC	-0.13088 0.1080	0.14949 0.0660	0.07197 0.3700	0.29171 0.0003	-0.12344 0.1297	-0.03378 0.0706
EPV	-0.00024 0.9977	-0.01421 0.0080	-0.03226 0.6932	-0.19386 0.0167	0.46635 0.0001	-0.03304 0.6700
EPOJ	-0.01196 0.8838	-0.18479 0.0227	-0.20189 0.0126	-0.08359 0.3059	-0.20940 0.0096	0.54161 0.0001
EPME	0.00894 0.9129	0.18868 0.0199	0.12344 0.1297	0.12640 0.1207	-0.01914 0.3149	0.07102 0.3040
EPSE	-0.14363 0.0775	-0.10788 0.1059	-0.03681 0.6325	-0.06503 0.4261	0.03456 0.6725	-0.08398 0.3006
EPSW	-0.19073 0.0186	0.13675 0.0930	0.00610 0.4134	0.04563 0.5767	-0.02759 0.7358	-0.19892 0.0140
EPVT	-0.21285 0.0035	-0.15881 0.0507	-0.13922 0.0872	-0.03049 0.7092	0.02866 0.7260	-0.14955 0.0659
EPWE	0.04075 0.6182	-0.10054 0.2178	-0.07751 0.3426	-0.06562 0.2943	-0.00673 0.9345	0.02777 0.7342

## KEY

EP1 & EPBM = Behavior Modeling

EP2 & EPCL = Classroom Lecture

EP3 & EPCE = Computer Based Training

EP4 & EPCC = Correspondence Course

EP5 & EPV = Interactive Video Disk

EP6 & EPOJ = On-the Job Training

EP7 & EPME = Mentoring

EP8 & EPSE = Simulation Exercise

EP9 & EPSW = Seminar/Workshop

EP10 & EPVT = Video Tape

EP11 & EPWE = Wilderness Experience

# Correlation Analysis for Emphasizing Performance (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under H<sub>0</sub>: Rho=0 / N = 152

	EP7	EP8	EP9	EP10	EP11
EPBM	0.12727 0.1182	-0.17792 0.0283	-0.03035 0.7105	-0.17605 0.0300	-0.04456 0.5056
EPCL	0.05247 0.5209	-0.04503 0.5817	0.27064 0.0007	0.05876 0.4721	-0.11525 0.1574
EPCE	0.05679 0.4871	0.06299 0.4403	0.00903 0.9120	0.04171 0.6098	-0.13040 0.1091
EPCC	0.02863 0.7262	-0.08558 0.2945	0.00402 0.9608	-0.01564 0.3484	-0.35947 0.0001
EPIV	-0.12423 0.1273	0.12506 0.1247	-0.12372 0.1289	0.04175 0.6005	0.07617 0.0310
EPOJ	0.01408 0.8633	-0.18962 0.0193	-0.33505 0.0001	-0.23865 0.0031	-0.07859 0.3359
EPME	0.54719 0.0001	-0.23773 0.0032	-0.05230 0.5223	-0.03973 0.6270	-0.12842 0.1110
EPSE	-0.31323 0.0001	0.43616 0.0001	0.09164 0.2615	0.01448 0.8315	0.02745 0.7071
EPSW	-0.03698 0.6510	0.11944 0.1428	0.49309 0.0001	0.14429 0.0761	-0.19005 0.0190
EPVT	-0.18773 0.0206	-0.01349 0.8689	-0.04393 0.5910	0.42823 0.0001	0.09459 0.2464
EPWE	-0.15830 0.0514	0.05300 0.4774	-0.05903 0.4699	-0.11367 0.1559	0.66423 0.0001

## KEY

EP1 & EPBM = Behavior Modeling

EP2 & EPCL = Classroom Lecture

EP3 & EPCE = Computer Based Training

EP4 & EPCC = Correspondence Course

EP5 & EPIV = Interactive Video Disk

EP6 & EPOJ = On-the-Job Training

EP7 & EPME = Mentoring

EP8 & EPSE = Simulation Exercise

EP9 & EPSW = Seminar/Workshop

EP10 & EPVT = Video Tape

EP11 & EPWE = Wilderness Experience

# Correlation Analysis for Planning and Organizing

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	PO1	PO2	PO3	PO4	PO5	PO6
POBM	0.54829 0.0001	-0.27290 0.0007	-0.24432 0.0024	-0.26086 0.0012	-0.18365 0.0235	-0.00635 0.9381
POCL	-0.15800 0.0519	0.58916 0.0001	0.00243 0.9763	0.12387 0.1284	-0.07303 0.3713	-0.21023 0.0093
POCB	-0.18311 0.0239	0.13411 0.0995	0.55628 0.0001	0.17755 0.0286	0.23959 0.0030	-0.04104 0.6137
POCC	-0.26199 0.0011	0.08724 0.2852	0.03818 0.6405	0.39267 0.0001	-0.04147 0.6120	-0.15032 0.0645
POIV	-0.15749 0.0527	-0.05634 0.4906	0.13566 0.0220	0.00223 0.9703	0.43023 0.0001	-0.11259 0.1171
POOJ	0.06498 0.4264	-0.19152 0.0181	-0.12903 0.1131	-0.12441 0.1267	0.14181 0.0814	0.56970 0.0001
POME	0.16455 0.0428	-0.02015 0.8054	-0.05476 0.5028	-0.03277 0.6835	-0.15401 0.0582	0.27990 0.0003
POSE	-0.03765 0.6452	-0.17495 0.0311	0.01567 0.8481	-0.02169 0.7909	-0.04954 0.5444	0.02072 0.6000
POSN	-0.12240 0.1328	0.26270 0.0011	-0.04860 0.5521	0.02255 0.7827	0.00601 0.9385	-0.36842 0.0001
POVT	-0.07947 0.3304	0.03043 0.7098	-0.07986 0.3280	0.05768 0.4303	0.12242 0.1330	0.17545 0.0306
POWE	0.09792 0.2301	-0.25739 0.0014	-0.12536 0.1238	-0.23863 0.0031	-0.12020 0.1402	0.04525 0.5798

## KEY

PO1 & POBM = Behavior Modeling  
PO2 & POCL = Classroom Lecture  
PO3 & POCB = Computer Based Training  
PO4 & POCC = Correspondence Course  
PO5 & POIV = Interactive Video Disk  
PO6 & POOJ = On-the Job Training

PO7 & PCME = Mentoring  
PO8 & POSE = Simulation Exercise  
PO9 & POSN = Seminar/Workshop  
PO10 & POVT = Video Tape  
PO11 & POWE = Wilderness Experience

# Correlation Analysis for Planning and Organizing

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under H<sub>0</sub>: Rho=0 / N = 152

	PO7	PO8	PO9	PO10	PO11
POEM	0.13281 0.1029	-0.06092 0.4560	-0.21493 0.0078	-0.19537 0.0159	0.01708 0.3345
POCL	-0.13368 0.1006	-0.24212 0.0027	0.12375 0.1293	-0.01390 0.6650	-0.21534 0.0077
POCB	-0.19546 0.0153	-0.03035 0.7105	0.09364 0.2512	0.05794 0.4783	-0.16266 0.0453
POCC	-0.17380 0.0322	-0.15501 0.0565	-0.06642 0.4162	-0.03603 0.2390	-0.28441 0.0004
POIV	-0.21256 0.0036	-0.03394 0.6781	-0.02845 0.7279	0.18649 0.0214	-0.09772 0.2010
POOC	0.21448 0.0080	-0.03982 0.6262	-0.25765 0.0014	-0.19696 0.0150	-0.01305 0.3702
POME	0.50721 0.0001	-0.06054 0.4587	-0.16836 0.0081	-0.03186 0.6968	0.10649 0.1916
POSE	0.09887 0.2256	0.54024 0.0001	0.07539 0.3553	-0.00409 0.9601	0.13014 0.1020
POSW	-0.25246 0.0017	-0.10496 0.1981	0.40639 0.0001	0.06193 0.4485	-0.17412 0.0319
POVT	-0.17041 0.0079	0.05021 0.5390	0.18649 0.0214	0.46299 0.0001	-0.10419 0.2013
POWE	0.03814 0.6408	0.12595 0.1224	-0.01792 0.3265	-0.12967 0.1113	0.61203 0.0001

## KEY

PO1 & POEM = Behavior Modeling	PO7 & POME = Mentoring
PO2 & POCL = Classroom Lecture	PO8 & POSE = Simulation Exercise
PO3 & POCB = Computer Based Training	PO9 & POSW = Seminar/Workshop
PO4 & POCC = Correspondence Course	PO10 & POVT = Video Tape
PO5 & POIV = Interactive Video Disk	PO11 & POWE = Wilderness Experience
PO6 & POOC = On the Job Training	



# Correlation Analysis for Foresight

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under H<sub>0</sub>: Rho=0 / N = 152

	FO1	FO2	FO3	FO4	FO5	FO6
FOBM	0.54244 0.0001	-0.00537 0.9477	-0.01903 0.8160	-0.07909 0.3328	-0.02196 0.7882	0.09607 0.2391
FOCL	-0.07391 0.3655	0.49361 0.0001	-0.09282 0.2554	0.10510 0.1975	-0.09365 0.2511	-0.06320 0.4136
FOCD	-0.11328 0.1467	0.00991 0.9035	0.35980 0.0001	0.03749 0.6465	0.18847 0.0201	-0.10940 0.1737
FOCC	-0.14532 0.0741	0.10652 0.1915	0.14050 0.0843	0.33371 0.0001	-0.02961 0.7172	-0.12445 0.1286
FOIV	0.02521 0.7578	-0.07662 0.3481	0.18608 0.0217	0.09896 0.2251	0.52136 0.0001	-0.09286 0.2552
FOOJ	-0.11499 0.1584	-0.23309 0.0039	-0.21944 0.0066	-0.24938 0.0019	-0.23785 0.0032	0.59225 0.0001
FOME	0.07513 0.3576	0.03153 0.6998	0.06481 0.4276	0.11310 0.1653	-0.03928 0.5000	0.03914 0.6321
FOSE	-0.07511 0.3577	-0.12599 0.1219	0.08277 0.3107	-0.06756 0.4082	0.04698 0.3659	0.09755 0.2318
FOSW	-0.18589 0.0219	0.13771 0.0907	0.03484 0.6700	0.12204 0.1342	-0.01402 0.8639	-0.16901 0.0374
FOVT	0.00748 0.9271	-0.06226 0.4461	-0.13910 0.0874	-0.01047 0.8981	0.06032 0.4604	-0.20493 0.0113
FOWE	-0.02453 0.7642	-0.16271 0.0452	-0.20515 0.0112	-0.23499 0.0036	-0.19881 0.0141	-0.03399 0.6776

## KEY

FO1 & FOBM = Behavior Modeling  
FO2 & FOCL = Classroom Lecture  
FO3 & FOCD = Computer Based Training  
FO4 & FOCC = Correspondence Course  
FO5 & FOIV = Interactive Video Disk  
FO6 & FOOJ = On the-Job Training

FO7 & FOME = Mentoring  
FO8 & FOSE = Simulation Exercise  
FO9 & FOSW = Seminar/Workshop  
FO10 & FOVT = Video Tape  
FO11 & FOWE = Wilderness Experience

# Correlation Analysis for Foresight (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	FO7	FO8	FO9	FO10	FO11
FORM	0.08991 0.2706	-0.01504 0.8541	0.11264 0.1671	-0.06127 0.4534	0.04151 0.6116
FOCL	0.01281 0.8756	-0.02070 0.8002	0.08648 0.2894	0.01805 0.8253	-0.20820 0.0101
FOCE	-0.20435 0.0116	0.01911 0.8152	0.02337 0.7750	0.05045 0.5371	-0.11272 0.1668
FOCC	0.00123 0.9880	-0.14523 0.0742	-0.15538 0.0359	-0.08639 0.2900	-0.29564 0.0002
FOIV	0.05477 0.5027	0.14923 0.0684	0.04060 0.6139	0.21231 0.0036	0.00500 0.9433
FOCU	-0.05532 0.4984	-0.10394 0.7025	-0.23762 0.0032	-0.29388 0.0002	-0.09045 0.2678
FOME	0.46834 0.0001	-0.07585 0.3530	-0.09933 0.2234	0.02273 0.7810	-0.13442 0.0987
FOSE	-0.13156 0.1062	0.48953 0.0001	0.05869 0.4726	0.10592 0.1041	0.10423 0.2015
FOSW	-0.10983 0.1779	-0.10309 0.2063	0.52200 0.0001	0.18800 0.0203	-0.08849 0.2792
FOVT	-0.09300 0.2545	-0.11070 0.1746	0.07149 0.3814	0.46788 0.0001	-0.00252 0.9754
FOWE	-0.10133 0.2141	-0.04544 0.5783	-0.03500 0.6681	-0.23317 0.0038	0.57117 0.0001

## KEY

FO1 & FORM = Behavior Modeling

FO2 & FOCL = Classroom Lecture

FO3 & FOCE = Computer Based Training

FO4 & FOCC = Correspondence Course

FO5 & FOIV = Interactive Video Disk

FO6 & FOCC = On-the Job Training

FO7 & FOME = Mentoring

FO8 & FOSE = Simulation Exercise

FO9 & FOSW = Seminar/Workshop

FO10 & FOVT = Video Tape

FO11 & FOWE = Wilderness Experience

# Correlation Analysis for Performance Communication

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	PC1	PC2	PC3	PC4	PC5	PC6
PCBM	0.58102 0.0001	-0.17814 0.0281	-0.15318 0.0596	-0.12273 0.1320	-0.06143 0.4520	-0.03218 0.6939
PCCL	-0.21075 0.0092	0.52087 0.0001	-0.01356 0.8683	0.21527 0.0077	-0.07835 0.3373	-0.13842 0.0890
PCCE	-0.12300 0.1311	0.01825 0.8234	0.33201 0.0001	-0.01980 0.8087	-0.01387 0.8653	-0.03327 0.6841
PCCC	-0.17950 0.0269	0.02421 0.7672	-0.00588 0.9427	0.24041 0.0029	-0.11617 0.1541	-0.06079 0.4569
PCIV	0.00653 0.9364	-0.07360 0.3673	0.18577 0.0219	0.10822 0.1945	0.47866 0.0001	0.03112 0.2642
PCOJ	0.03709 0.6501	-0.21447 0.0080	-0.19091 0.0185	-0.17990 0.0266	-0.21411 0.0081	0.48309 0.0001
PCME	-0.04083 0.6174	0.04830 0.5545	0.05262 0.5197	0.03458 0.6724	-0.08793 0.2814	0.19763 0.0147
PCSE	-0.08308 0.2089	-0.08910 0.2750	0.11811 0.1472	0.05180 0.5262	0.22081 0.0063	0.11035 0.1431
PCSW	-0.22911 0.0045	0.13688 0.0927	0.01387 0.7704	-0.07762 0.3419	0.02831 0.7292	-0.03420 0.0001
PCVT	0.04423 0.5884	0.11971 0.1418	0.00158 0.9846	0.08992 0.2706	0.10315 0.2060	0.05637 0.4903
PCWE	0.01939 0.8125	-0.21968 0.0065	-0.21725 0.0072	-0.24917 0.0020	0.16323 0.0445	-0.03262 0.6899

## KEY

PC1 & PCBM = Behavior Modeling

PC2 & PCCL = Classroom Lecture

PC3 & PCCB = Computer Based Training

PC4 & PCCC = Correspondence Course

PC5 & PCIV = Interactive Video Disk

PC6 & PCOJ = On-the-Job Training

PC7 & PCME = Mentoring

PC8 & PCSE = Simulation Exercise

PC9 & PCSW = Seminar/Workshop

PC10 & PCVT = Video Tape

PC11 & PCWE = Wilderness Experience

# Correlation Analysis for Performance Communication (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	PC7	PC8	PC9	PC10	PC11
PCBM	0.07971 0.3290	-0.07815 0.3386	-0.22026 0.0064	-0.06071 0.4575	0.03026 0.7113
PCCL	-0.08818 0.2800	-0.11428 0.1610	0.27108 0.0007	0.04377 0.5924	-0.17285 0.0332
PCCB	-0.10344 0.2047	0.01299 0.8738	-0.05600 0.4929	-0.10523 0.1970	-0.04901 0.5416
PCCC	-0.12733 0.0203	-0.13804 0.0203	-0.20892 0.0093	-0.16853 0.0379	-0.37366 0.0001
PCIV	0.02543 0.7558	0.20077 0.0131	0.01116 0.9915	0.15150 0.0624	0.04202 0.5010
PCOJ	0.13305 0.1022	-0.13261 0.1034	-0.24073 0.0028	-0.18188 0.0249	-0.04302 0.5988
PCME	0.49327 0.0001	-0.20282 0.0122	-0.17504 0.0310	-0.09796 0.2299	-0.01697 0.8356
PCSE	-0.22322 0.0037	0.52352 0.0001	0.17135 0.0343	0.01292 0.8745	-0.01120 0.9111
PCSW	0.22014 0.0064	0.08812 0.2804	0.42961 0.0001	0.03890 0.6342	0.09231 0.2570
PCVT	-0.00713 0.9305	0.02617 0.7439	0.12706 0.1138	0.49553 0.0001	-0.02514 0.7583
PCWE	-0.02170 0.7908	-0.10701 0.1895	-0.01350 0.9691	-0.09729 0.2331	0.56335 0.0001

## KEY

PC1 & PCBM = Behavior Modeling  
PC2 & PCCL = Classroom Lecture  
PC3 & PCCL = Computer Based Training  
PC4 & PCCC = Correspondence Course  
PC5 & PCIV = Interactive Video Disk  
PC6 & PCOJ = On-the-Job Training

PC7 & PCME = Mentoring  
PC8 & PCSE = Simulation Exercise  
PC9 & PCSW = Seminar/Workshop  
PC10 & PCVT = Video Tape  
PC11 & PCWE = Wilderness Experience

# Correlation Analysis for Providing Praise and Recognition

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under H<sub>0</sub>: Rho=0 / N = 152

	PR1	PR2	PR3	PR4	PR5	PR6
PRBM	0.60314 0.0001	-0.11129 0.1722	-0.09075 0.2662	-0.07367 0.3671	-0.04794 0.3576	-0.13742 0.0914
PRCL	-0.07153 0.3812	0.55978 0.0001	0.11101 0.1733	0.22777 0.0048	-0.03984 0.6260	-0.08604 0.2916
PRCB	-0.14405 0.0766	-0.04038 0.6170	0.01539 0.0001	0.01102 0.9928	0.10373 0.2034	0.06625 0.4174
PRCC	-0.04368 0.5931	0.03696 0.6512	-0.01305 0.8732	0.30344 0.0001	-0.08941 0.2767	-0.10464 0.1995
PRIV	-0.06364 0.4360	-0.01893 0.3170	0.14334 0.0781	0.04521 0.3302	0.48021 0.0001	-0.03849 0.3073
PROJ	-0.07291 0.3720	-0.16779 0.0388	0.14963 0.0658	-0.15201 0.0616	-0.23727 0.0032	0.60327 0.0001
PRME	0.13802 0.0899	0.09852 0.2272	0.02750 0.7367	0.14858 0.0677	-0.13567 0.0958	0.13319 0.1016
PRSE	-0.20345 0.0119	0.02038 0.8032	0.08302 0.3092	-0.02089 0.7094	0.13313 0.1010	-0.03109 0.3033
PRSW	-0.14368 0.0774	0.07280 0.3723	-0.01813 0.8245	-0.08692 0.2366	-0.02691 0.7421	0.38967 0.0001
PRVT	-0.18508 0.0221	-0.04358 0.5940	-0.03342 0.6827	-0.04477 0.5839	0.13721 0.0019	0.28000 0.0000
PRWE	0.01713 0.3341	-0.29459 0.0002	-0.21824 0.0069	-0.27214 0.0007	-0.14250 0.0798	0.07815 0.3575

## KEY

PR1 & PRBM = Behavior Modeling  
PR2 & PRCL = Classroom Lecture  
PR3 & PROB = Computer Based Training  
PR4 & PRCC = Correspondence Course  
PR5 & PRIV = Interactive Video Disk  
PR6 & PROJ = On-the-Job Training

PR7 & PRME = Mentoring  
PR8 & PRSE = Simulation Exercise  
PR9 & PRSW = Seminar Workshop  
PR10 & PRVT = Video Tape  
PR11 & PRWE = Wilderness Experience

# Correlation Analysis for Providing Praise and Recognition (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 1 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	PR7	PR8	PR9	PR10	PR11
PRBM	0.02474 0.7623	-0.15252 0.0607	-0.03362 0.6809	-0.05741 0.4823	-0.06653 0.4130
PRCL	0.05025 0.5387	-0.03096 0.7049	0.17745 0.0287	0.03941 0.6297	-0.24194 0.0027
PRCE	-0.06679 0.4136	0.06251 0.4442	0.01837 0.8222	-0.07540 0.3553	0.07037 0.3089
PRCC	-0.03942 0.6297	-0.09359 0.2514	-0.14367 0.0676	-0.13023 0.1098	-0.22533 0.0052
PRIV	-0.16214 0.0460	0.18857 0.0200	-0.03396 0.6601	0.13617 0.0944	0.03077 0.4521
PROJ	0.03080 0.7064	-0.12390 0.1283	-0.24331 0.0020	-0.26419 0.0010	0.00106 0.9896
PRME	0.58227 0.0001	-0.16492 0.0422	-0.13622 0.0942	0.02747 0.7369	0.00847 0.9173
PRSE	-0.21391 0.0081	0.50750 0.0001	0.20301 0.0121	0.05526 0.4979	0.06637 0.4166
PRSW	-0.13533 0.0963	0.03374 0.5799	0.44621 0.0001	0.04812 0.5560	0.15199 0.0616
PRVT	-0.13360 0.1008	-0.07266 0.3737	-0.05635 0.4905	0.47573 0.0001	-0.09055 0.2517
PRWE	-0.05691 0.4862	-0.03544 0.6647	0.01017 0.9011	-0.17963 0.0263	0.55755 0.0001

## KEY

PR1 & PRBM = Behavior Modeling	PR7 & PRME = Mentoring
PR2 & PRCL = Classroom Lecture	PR8 & PRSE = Simulation Exercise
PR3 & PRCE = Computer Based Training	PR9 & PRSW = Seminar/Workshop
PR4 & PRCC = Correspondence Course	PR10 & PRVT = Video Tape
PR5 & PRIV = Interactive Video Disk	PR11 & PRWE = Wilderness Experience
PR6 & PROJ = On-the-Job Training	

# Correlation Analysis for Setting Goals

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	SG1	SG2	SG3	SG4	SG5	SG6
SGRM	0.58497 0.0001	-0.10891 0.1817	-0.03992 0.6253	-0.16937 0.0370	-0.12070 0.1385	0.00687 0.9330
SGCL	-0.14250 0.0799	0.60413 0.0001	0.12951 0.1118	0.21333 0.0083	-0.10655 0.1914	-0.17690 0.0292
SGCB	-0.06600 0.4192	-0.03957 0.6284	0.32565 0.0001	0.01850 0.8210	0.18177 0.0250	0.04071 0.6184
SGCC	-0.10415 0.2016	0.15727 0.0520	0.08728 0.2030	0.36666 0.0001	0.03134 0.7013	-0.11756 0.1492
SGIV	-0.05596 0.4935	-0.11787 0.1481	0.13757 0.0910	0.04245 0.6030	0.44737 0.0001	-0.05021 0.4512
SGOC	0.07042 0.3886	-0.28811 0.0003	-0.20342 0.0120	-0.19458 0.0163	-0.14418 0.0764	0.61660 0.0001
SGME	0.06033 0.4603	-0.04241 0.6039	-0.09870 0.2264	-0.07364 0.3672	-0.07406 0.3645	0.15781 0.0522
SGSE	-0.08221 0.3140	0.05146 0.5209	0.06116 0.4542	0.03770 0.6447	0.08764 0.2330	-0.16826 0.0302
SGSW	-0.029409 0.0002	0.16952 0.0367	0.03186 0.6968	0.05859 0.4734	-0.05643 0.4895	-0.22270 0.0046
SGVT	-0.12547 0.1235	-0.06793 0.4032	-0.11616 0.1541	0.07958 0.0290	0.03874 0.6036	-0.08471 0.2994
SGWE	-0.00707 0.9312	-0.24263 0.0026	0.18090 0.0257	-0.23494 0.0015	0.12030 0.1389	-0.10495 0.1982

## KEY

SG1 & SGRM = Behavior Modeling

SG2 & SGCL = Classroom Lecture

SG3 & SGCC = Computer Based Training

SG4 & SGCC = Correspondence Course

SG5 & SGIV = Interactive Video Disk

SG6 & SGOC = On-the-Job Training

SG7 & SGME = Mentoring

SG8 & SGSE = Simulation Exercise

SG9 & SGSW = Seminar/Workshop

SG10 & SGVT = Video Tape

SG11 & SGWE = Wilderness Experience

# Correlation Analysis for Setting Goals (Cont.)

Training Methods from Section 1 Across the Top  
Training Methods from Section 2 Down the Side

Pearson Correlation Coefficients / Prob > |R| under Ho: Rho=0 / N = 152

	SG7	SG8	SG9	SG10	SG11
SGPM	0.15138 0.0627	-0.06983 0.3927	-0.16322 0.0443	-0.11918 0.1423	0.09500 0.1440
SGCL	-0.02217 0.7305	-0.14021 0.0849	0.19874 0.0141	0.06026 0.4608	-0.14207 0.0607
SGCB	-0.03238 0.6921	0.04629 0.5712	0.04287 0.6000	-0.12290 0.1315	-0.10050 0.2179
SGCC	-0.04317 0.5974	-0.05941 0.4672	-0.00612 0.9404	0.06664 0.4146	-0.29435 0.0000
SGIV	-0.12129 0.1366	0.11911 0.1439	-0.04629 0.5712	0.15241 0.0609	0.12871 0.1140
SGOJ	0.17436 0.0317	-0.12344 0.1297	-0.22575 0.0052	-0.24537 0.0023	-0.02276 0.7807
SGME	0.51727 0.0001	-0.13638 0.0939	-0.09106 0.2646	-0.11918 0.1436	-0.13390 0.1000
SGSE	0.19595 0.0153	0.52501 0.0001	0.19219 0.0177	0.06392 0.4040	0.11214 0.1300
SGSW	0.13583 0.0552	0.05338 0.5136	0.35123 0.0001	0.06126 0.4534	0.10092 0.1917
SGVT	-0.17259 0.0335	-0.13351 0.1011	-0.03694 0.6514	0.43587 0.0001	-0.00929 0.9005
SGWE	-0.18025 0.0263	0.02873 0.7253	-0.10021 0.2193	-0.10598 0.1938	0.56334 0.0001

## KEY

SG1 & SGPM = Behavior Modeling

SG2 & SGCL = Classroom Lecture

SG3 & SGCB = Computer Based Training

SG4 & SGCC = Correspondence Course

SG5 & SGIV = Interactive Video Disk

SG6 & SGOJ = On-the-Job Training

SG7 & SGME = Mentoring

SG8 & SGSE = Simulation Exercise

SG9 & SGSW = Seminar/Workshop

SG10 & SGVT = Video Tape

SG11 & SGWE = Wilderness Experience



## Bibliography

- Bard, Ray and et al. The Trainer's Professional Development Handbook. San Francisco: Jossey-Bass Publishers, 1987.
- Boyer, Lt Col Stephen P. "A Proposal to Institute a Company Grade Professional Development Program (CGPDP) within the United States Air Force." Report to the USAF Research Associate Program. HQ USAF, Washington DC, June 1989.
- Brodeur, Edmund R. and Karen W. Currie. Assessment of Initial Technical Training for USAF Supply Officers. MS thesis, AFIT/GLM/LSM/84S-5. School of Systems and Logistics. Air Force Institute of Technology (AU), Wright Patterson AFB OH, September 1984 (AD-A146932).
- Currier, R. L. "Interactive Video Discs Learning Systems." High Technology, 3:51-59 (November 1983).
- Department of the Air Force. Officer Professional Development Guide. AF Pamphlet 36-13. Washington DC: HQ USAF, 1 March 1989.
- Digman, Lester A. "How Well-managed Organizations Develop Their Executives," Organizational Dynamics, 7: 63-79 (Autumn 1978).
- Dobias, Major Leonard J. An Analysis of Management Development in the Air Force. Air Command and Staff College, Maxwell AFB AL, May 1974 (AD-920853).
- Emory, C. William. Business Research Methods. Homewood IL: Richard D. Irwin, Inc. (1985)
- Goldstein, Irwin L. "Training in Work Organizations," Annual Review of Psychology. 229-272 (1980).
- Training in Organizations: Needs Assessment, Development, and Evaluation (Second Edition). Monterey CA: Brooks/Cole Publishing Company, 1986.
- Graham, J. Kenneth and W. L. Mihal. "Guidelines for Designing Management Development Programmes," The Journal of Management Development, 5: 57-64 (1986).
- Hunt, David M. and Carol Michael. "Mentorship: A Career Training and Development Tool," Academy of Management Review, 8: 475-485 (1983).

- Katz, Robert L. "Skills of an Effective Administrator," Harvard Business Review, 52:90-102 (September-October 1974).
- Keys, Bernard and Joseph Wolfe. "Management Education and Development: Current Issues and Emerging Trends," Journal of Management, 14: 205-229 (1988).
- Licker, P. S. The Art of Managing Software Development People. New York: John Wiley and Sons, Inc., 1985.
- Long, Janet W. "The Wilderness Lab," Training and Development Journal, 38:58-69 (May 1984).
- Mayo, Douglas G. and Philip H. DuBois. The Complete Book of Training: Theory, Principles, and Techniques. San Diego: University Associates, 1987.
- McAlear, Capt Dana L. Developing Chiefs of Supply. MS thesis, AFIT/GLM/LSR/89S-60. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, September 1989 (AD-A215425).
- McCauley, Cynthia D. Developmental Experiences in Managerial Work: A Literature Review. Technical Report Number 26. Greensboro NC: Center for Creative Leadership, 1986.
- Nadler, Leonard and Zeace Nadler. The Conference Book. Houston: Gulf, 1977.
- Norman, Donald A. Learning and Memory. San Francisco: W.H. Freeman and Company, 1982.
- Peterson, Lt Col Tim O. and Dana McAlear. "A Multi-Method Multi-Sample Approach for Assessing Managerial Development Needs: From Felt Need to Actual Need," Proceedings of the Academy of Management Meetings. San Francisco: (In press), 1990.
- Phillips, Jack J. Handbook of Training Evaluation and Measurement Methods. San Diego: Gulf Publishing Company, 1983.
- Porter, David B. and et al. "Human Relation Skills and Interactive Video Disc: Using Student Groups to Enhance Educational Outcomes," Proceedings of the Eighth Annual Conference on Technology and Innovations in Training and Education. 553-567. Colorado Springs CO. March 1990.

Randall, John S. "Methods of Teaching," The Training and Development Sourcebook, edited by Lloyd Baird and et al. 127-130. Amherst MA: Human Resource Development Press, 1983.

Smith, Wayne H. "Implementing a Management Development Program," Personnel Administrator. 75-86 (July 1985).

Sullivan, Robert F. and Donald C. Miklas. "On-the-Job Training that Works," Training and Development Journal, 39: 118-120 (May 1985).

Ulschak, Francis L. Human Resource Development: The Theory and Practice of Need Assessment. Reston VA: Reston Publishing Company, 1983.

Vaill, Peter B. "An Informal Glossary of Terms and Phases in Organizational Development." In J. E. Jones and J. W. Pfeiffer (eds.), The 1973 Annual Handbook of Group Facilitators. San Diego: University Associates, 1973.

Vroom, V. H. Work and Motivation. New York: John Wiley and Sons, Inc., 1964.

Wallzer, Michael H. and Paul Wienir. Research Methods and Analysis. New York: Harper and Row, 1978.

Watson, Charles E. Management Development Through Training. Reading MA: Addison-Wesley Publishing Company, 1979.

Wexley, Kenneth N. "Personnel Training," Annual Review of Psychology. 519-551 (1984).

----- and Timothy T. Baldwin. "Management Development," Journal of Management, 12: 277-294 (1986).

----- and Gary P. Latham. Developing and Training Human Resources in Organizations. Glenview IL: Scott, Foresman and Company, 1981.

Vita

Captain Kevin D. Illsley [REDACTED]

[REDACTED] graduated from high school in Faribault, Minnesota in 1976. He received a Bachelor of Science degree in Business from the University of Northern Colorado in 1980. He was commissioned in the United States Air Force through the Reserve Officer Training Corp on 7 June 1980. After graduation from the Supply Operations Officer course, he was assigned to the 64th Supply Squadron, Reese AFB, Texas where he served as the Materiel Support Officer, Materiel Management Branch Chief, and the Customer Support Branch Chief. On 11 May 1984, he was assigned to the Lowry Technical Training Center as an instructor in the Supply Operations Officer course. On 18 April 1986, he became the Supply Training Staff Officer at Headquarters Air Training Command, Randolph AFB, Texas. He entered the School of Systems and Logistics, Air Force Institute of Technology on 24 May 1989. Captain Illsley is a graduate of Squadron Officers School.

[REDACTED] [REDACTED]

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small>				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 1990	3. REPORT TYPE AND DATES COVERED Master's Thesis		
4. TITLE AND SUBTITLE EFFECTIVE TRAINING METHODS FOR TEACHING HUMAN SKILLS TO SUPPLY OFFICERS		5. FUNDING NUMBERS		
6. AUTHOR(S) Kevin D. Illsley, Captain, USAF				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Institute of Technology, WPAFB OH 45433-6583		8. PERFORMING ORGANIZATION REPORT NUMBER AFIT/GLM/LSR/90S-28		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Lt Col Tim O. Peterson Air Force Logistics Management Center/LGM Gunter Air Force Base, AL 36114-6693		10. SPONSORING / MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This study identifies the most effective training methods for teaching a set of human skills to Air Force supply officers. The goal is to improve the performance of supply officers so they may function effectively as Chiefs of Supply. Members of the American Society of Training and Development and the National Society of Performance and Instruction were surveyed to collect data. Eleven training methods served as the bases for this study: behavior modeling, classroom lecture, computer based training, correspondence course, on-the-job training, mentoring, simulation exercise, seminar/workshop, video tape, and wilderness experiences. Eleven human skills used in the study: acting consistently, communicating a shared understanding, emphasizing performance, enthusiasm, foresight, inspiring subordinates, introspection, performance communication, planning and organizing, providing praise and recognition, and setting goals. The most effective training methods were identified for training each specific human skill. The mentoring training method was judged the most effective method for teaching a majority of the skills. <i>Kevin Illsley</i>				
14. SUBJECT TERMS Training, Teaching Methods, Management Training, Air Force Training, Human Skills, Management Development		15. NUMBER OF PAGES 156		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	